

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 2/11/2002  
Art Unit: 1774 Phone Number 305-0988 Serial Number: 09/489,144  
Mail Box and Bldg/Room Location CP3 11D30 Results Format Preferred (circle) PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Electroluminescent Devices

Inventors (please provide full names): Nan-Xing Hu, Mohammad Esteghamatian,  
Zoran D. Popovic, Beng S. Ong, Ah-Mee Hor

Earliest Priority Filing Date: 1/21/2000

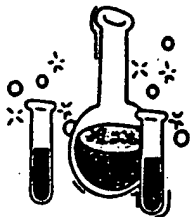
\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

*Please search  
attached claim 1*

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Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
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Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>37</u>	Other _____	Other (specify) _____



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Kathleen Fuller 308-4290

Eric Linnell 308-4143

Tim Saunders 308-4139

All the searchers are located in the library in CP3/4 3D62

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STRUCTURE FILE UPDATES: 19 FEB 2002 HIGHEST RN 393780-00-2  
DICTIONARY FILE UPDATES: 19 FEB 2002 HIGHEST RN 393780-00-2

TSCA INFORMATION NOW CURRENT THROUGH July 7, 2001

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES  
for more information. See STNote 27, Searching Properties in the CAS  
Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

The P indicator for Preparations was not generated for all of the  
CAS Registry Numbers that were added to the H/Z/CA/CAPLUS files between  
12/27/01 and 1/23/02. Use of the P indicator in online and SDI searches  
during this period, either directly appended to a CAS Registry Number  
or by qualifying an L-number with /P, may have yielded incomplete results.  
As of 1/23/02, the situation has been resolved. Also, note that searches  
conducted using the PREP role indicator were not affected.

Customers running searches and/or SDIs in the H/Z/CA/CAPLUS files  
incorporating CAS Registry Numbers with the P indicator between 12/27/01  
and 1/23/02, are encouraged to re-run these strategies. Contact the  
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worldwide, or send an e-mail to [help@cas.org](mailto:help@cas.org) for further assistance or to  
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=> FILE HCAPLUS

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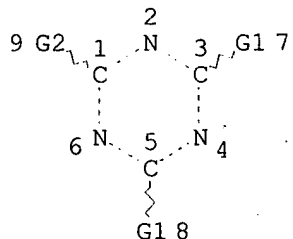
FILE COVERS 1907 - 18 Feb 2002 VOL 136 ISS 8  
FILE LAST UPDATED: 17 Feb 2002 (20020217/ED)

This file contains CAS Registry Numbers for easy and accurate  
substance identification.

=> D QUE  
L3

STR

Cb @10



*352 structures per this query*

Cb~G3~Cb  
@11 12 13

VAR G1=AK/CB  
VAR G2=10/11  
REP G3=(0-2) C  
NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
GGCAT IS PCY UNS AT 10  
GGCAT IS UNS AT 11  
GGCAT IS UNS AT 13  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE

L5 352 SEA FILE=REGISTRY SSS FUL L3  
L6 367 SEA FILE=HCAPLUS ABB=ON L5  
L7 13 SEA FILE=HCAPLUS ABB=ON L6 AND ?LUMINESC?  
L8 3 SEA FILE=HCAPLUS ABB=ON L6 AND EL  
L9 5 SEA FILE=HCAPLUS ABB=ON L6 AND ELECTRON?(4A)TRANSPORT?  
L10 8 SEA FILE=HCAPLUS ABB=ON L6 AND LIGHT?(4A)EMIT?  
L11 15 SEA FILE=HCAPLUS ABB=ON (L7 OR L8 OR L9 OR L10)

=> D ALL L11 1-15 HITSTR

*15 Co references from the structures & ability*

L11 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
AN 2001:402243 HCAPLUS  
DN 135:160421  
TI Synthesis and characterization of a new class of liquid-crystalline, highly **luminescent** molecules containing a 2,4,6-triphenyl-1,3,5-triazine unit  
AU Lee, C.-H.; Yamamoto, T.  
CS ~~Chemical Resources Laboratory, Tokyo Institute of Technology, Midori-ku, Yokohama, 226-8503, Japan~~  
SO Tetrahedron Letters (2001), 42(24), 3993-3996  
CODEN: TELEAY; ISSN: 0040-4039  
PB Elsevier Science Ltd.  
DT Journal  
LA English  
CC 75-11 (Crystallography and Liquid Crystals)

Section cross-reference(s): 28, 73

- AB A new class of 2,4,6-triphenyl-1,3,5-triazine derivs. having long alkoxy side chains were synthesized by a Pd(0)/Cu(I)-catalyzed C-C coupling reaction. These compds. behave as liq.-cryst. materials and show quantum yields >50% in **photoluminescence**.
- ST phenyltriazine alkoxy deriv prepn liq crystal **luminescence**
- IT Liquid crystals  
(columnar hexagonal disordered; prepn. and properties of triphenyltriazine derivs. having long alkoxy side chains)
- IT **Luminescence**  
(of triphenyltriazine derivs. having long alkoxy side chains)
- IT 30363-03-2  
RL: RCT (Reactant)  
(Pd(0)/Cu(I)-catalyzed C-C coupling reaction with didecyloxyphenylacetylene)
- IT 352432-33-8  
RL: RCT (Reactant)  
(Pd(0)/Cu(I)-catalyzed C-C coupling reaction with tris(bromophenyl)triazine)
- IT 352432-28-1P 352432-29-2P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(prepn. and liq. crystal properties and **luminescence** of)
- IT 352432-27-0P 352432-32-7P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(prepn. and solid-state polymorphism and **luminescence** of)
- IT 352432-30-5P 352432-31-6P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and thermal behavior and **luminescence** of)

RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Brasselet, S; Chem Mater 1999, V11, P1915 HCAPLUS
- (2) Cherioux, F; Chem Commun 1999, P2083 HCAPLUS
- (3) Davis, S; Organotransition Metal Chemistry: Syntheses 1982
- (4) Demus, D; Liquid Crystals: Application and Uses 1990, V1, P1
- (5) Dieck, H; J Organomet Chem 1975, V93, P259 HCAPLUS
- (6) Ghanashyam Acharya, S; Chem Commun 2000, P1351
- (7) Goldmann, D; Liq Cryst 1998, V25, P711 HCAPLUS
- (8) Gray, G; Smectic Liquid Crystals, Textures and Structures 1984
- (9) Hartley, F; The Chemistry of Platinum and Palladium 1973, P327
- (10) Hatzigrigoriou, E; J Org Chem 1990, V55, P315 HCAPLUS
- (11) Heck, R; Palladium Reagents in Organic Syntheses 1990
- (12) Imamoto, T; Chem Lett 1986, P967 HCAPLUS
- (13) Janietz, D; J Mater Chem 1998, V8, P265 HCAPLUS
- (14) Kitamura, T; J Am Chem Soc 1997, V119, P619 HCAPLUS
- (15) Kitamura, T; J Org Chem 1994, V59, P8053 HCAPLUS
- (16) Ky Hirschberg, T; Nature 2000, V407, P167
- (17) Lo, W; Mol Cryst Liq Cryst 1997, V308, P133 HCAPLUS
- (18) Maddux, T; J Am Chem Soc 1997, V119, P844 HCAPLUS
- (19) Malthete, J; Mol Cryst Liq Cryst 1973, V23, P233 HCAPLUS
- (20) Merkushev, E; Zh Org Khim 1975, V11, P1259 HCAPLUS
- ~~(21) Monroe, B; Chem Rev 1993, V93, P435 HCAPLUS~~
- (22) Murata, Y; 1999 HCAPLUS
- (23) Murata, Y; JP 29-2860 1999
- (24) Ohta, K; J Porphyrins Phthalocyanines 1999, V3, P249 HCAPLUS
- (25) Ohta, K; Liq Cryst 1999, V26, P663 HCAPLUS
- (26) Osakada, K; J Chem Soc 1997, P1265 HCAPLUS
- (27) Pohlers, G; Chem Mater 1997, V9, P1353 HCAPLUS
- (28) Ray, D; J Am Chem Soc 1990, V112, P5672 HCAPLUS

- (29) Sonogashira, K; Tetrahedron Lett 1975, P4467 HCAPLUS  
 (30) Takahashi, S; Synthesis 1980, P627 HCAPLUS  
 (31) Takatsu, H; Mol Cryst Liq Cryst 1986, V141, P27  
 (32) Tsibouklis, J; Liq Cryst 1988, V3, P1393 HCAPLUS  
 (33) Wang, Y; Mol Cryst Liq Cryst 1996, V287, P109 HCAPLUS  
 (34) Wolff, J; Angew Chem, Int Ed 2000, V39, P1436 HCAPLUS  
 (35) Yamamoto, T; Bull Chem Soc 1999, V72, P621 HCAPLUS  
 (36) Yamamoto, T; Chem Mater 1997, V9, P1217 HCAPLUS  
 (37) Yamamoto, T; Macromolecules 1994, V27, P6620 HCAPLUS  
 (38) Yu, L; Adv Mater 1994, V6, P156 HCAPLUS

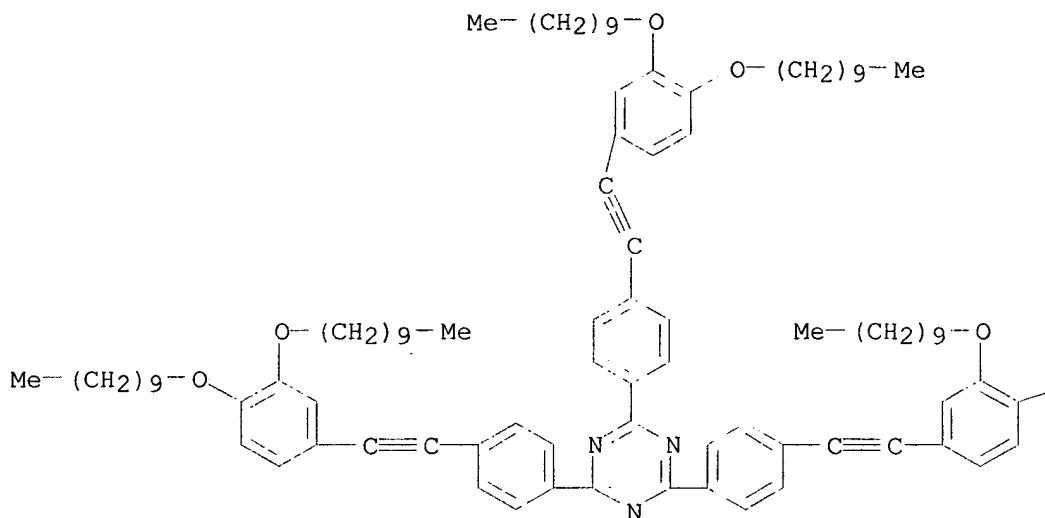
IT 352432-28-1P 352432-29-2P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN  
 (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (prepn. and liq. crystal properties and **luminescence** of)

RN 352432-28-1 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris[4-[[3,4-bis(decyloxy)phenyl]ethynyl]phenyl]-  
 (9CI) (CA INDEX NAME)

PAGE 1-A



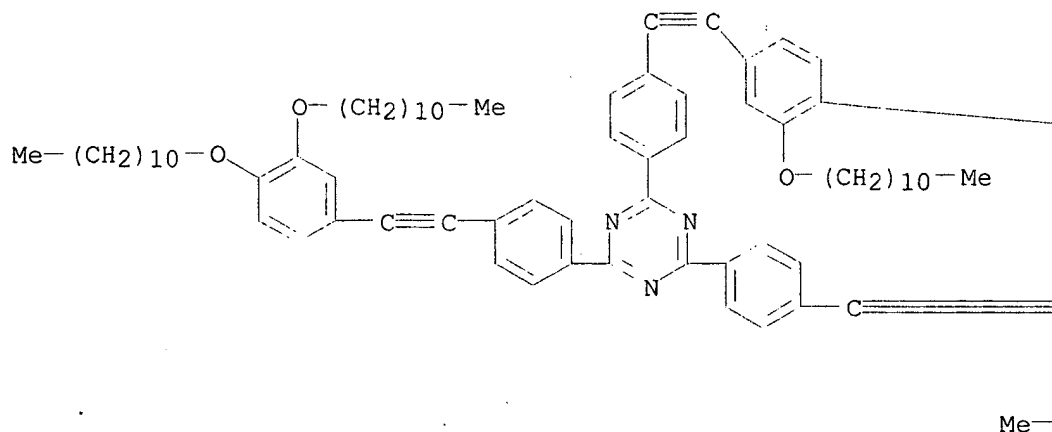
PAGE 1-B

—O—(CH<sub>2</sub>)<sub>9</sub>—Me

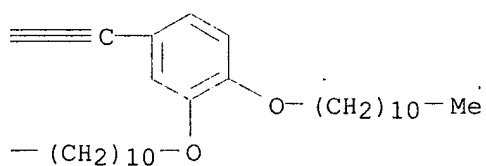
RN 352432-29-2 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris[4-[[3,4-bis(undecyloxy)phenyl]ethynyl]phenyl]-  
(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— O-(CH<sub>2</sub>)<sub>10</sub>-Me

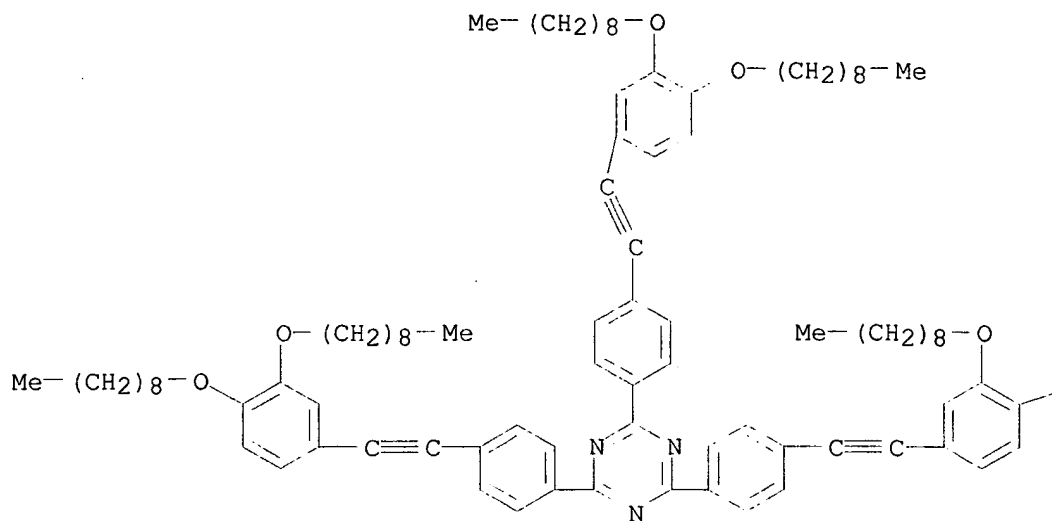
IT 352432-27-0P 352432-32-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN  
(Synthetic preparation); PREP (Preparation); PROC (Process)  
(prepn. and solid-state polymorphism and **luminescence** of)

RN 352432-27-0 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris[4-[[3,4-bis(nonyloxy)phenyl]ethynyl]phenyl]-  
(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

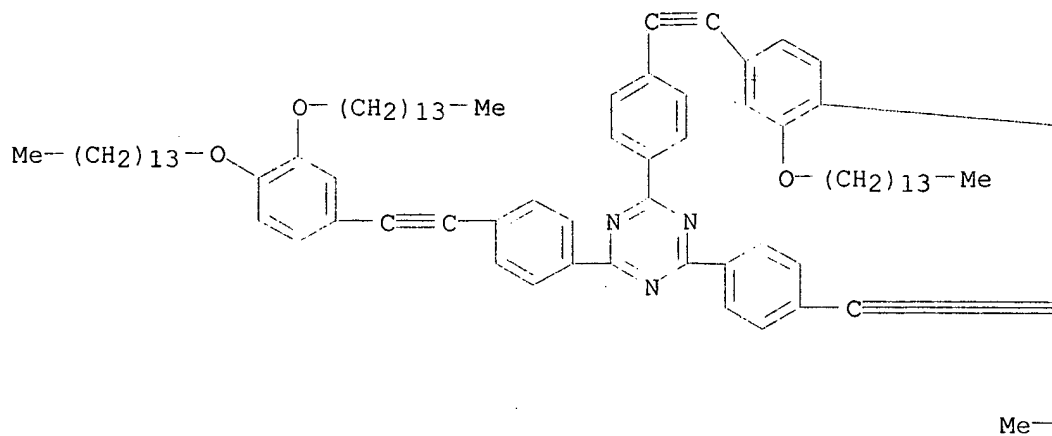
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RN 352432-32-7 HCAPLUS

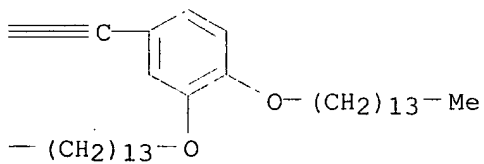
CN 1,3,5-Triazine, 2,4,6-tris[4-[[3,4-bis(tetradecyloxy)phenyl]ethynyl]phenyl]- (9CI) (CA INDEX NAME)



PAGE 1-A



PAGE 1-B

—O—(CH<sub>2</sub>)<sub>13</sub>—Me

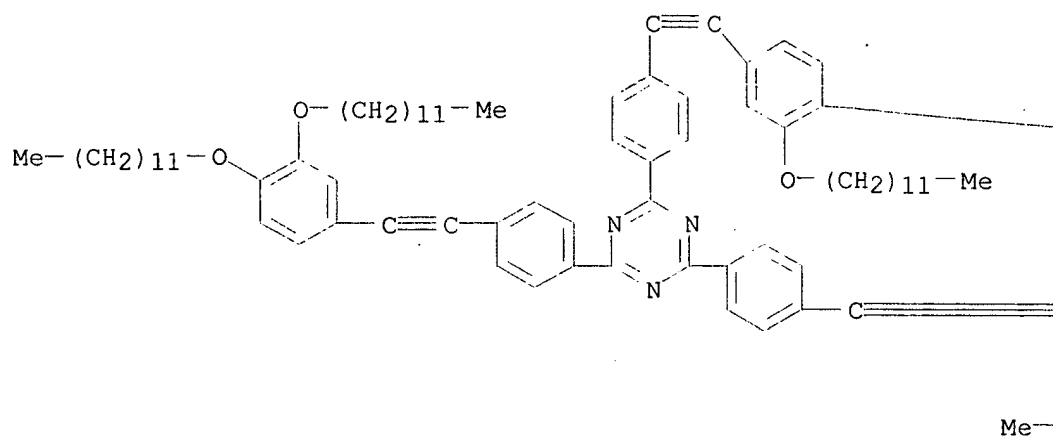
IT 352432-30-5P 352432-31-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and thermal behavior and **luminescence** of)

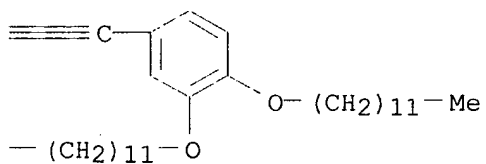
RN 352432-30-5 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris[4-[[3,4-bis(dodecyloxy)phenyl]ethynyl]phenyl]-  
(9CI) (CA INDEX NAME)

PAGE 1-A



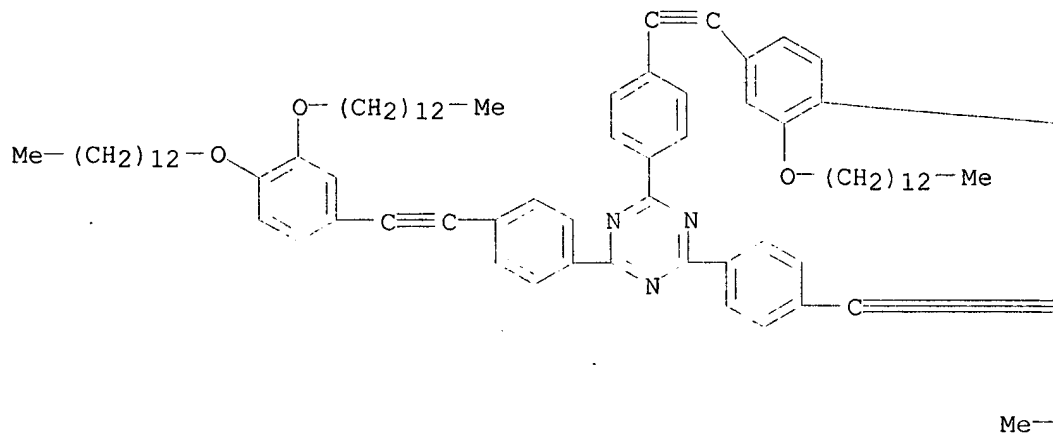
PAGE 1-B

— O— (CH<sub>2</sub>)<sub>11</sub>— Me

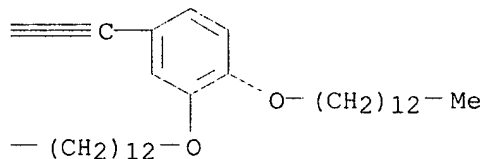
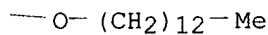
RN 352432-31-6 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris[4-[[3,4-bis(tridecyloxy)phenyl]ethynyl]phenyl]-  
(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L11 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:400141 HCAPLUS

DN 135:187363

TI Degradation in tris(8-hydroxyquinoline) aluminum (Alq3)-based organic light-emitting devices (OLEDs)

AU Aziz, Hany; Popovic, Zoran D.; Hu, Nan-Xing; DosAnjos, Paulo; Ioannidis, Andronique

CS Xerox Research Center of Canada, Mississauga, ON, Can.

SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4105(Organic Light-Emitting Materials and Devices IV), 251-255  
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

AB Poor device stability was a major concern for org. **light emitting** devices (OLEDs). The relatively short operational lifetime of the OLEDs is predominantly attributed to an intrinsic degrdn. behavior, which decreases the **electroluminescence** quantum efficiency of the devices in time. Recently, the injection of holes in tris(8-hydroxyquinoline) Al (AlQ3), the most widely used org. **electroluminescent** material, is the main factor responsible for the intrinsic degrdn. behavior in OLEDs. The **photoluminescence** quantum efficiency of AlQ3 decreases as a result of predominantly hole current flow. Further studies using time-resolved fluorescence measurements reveal that degrdn. is also assocd. with a decrease in the lifetime of the AlQ3 excited states, thus revealing the nature of the degrdn. products as **luminescence** quenchers. Various phenomena pertaining to device degrdn. is discussed.

ST degrdn hydroxyquinoline aluminum org **light emitting** device

IT Aging, materials

**Electroluminescent** devices

**Luminescence**

**Luminescence, electroluminescence**

(degrdn. in tris(8-hydroxyquinoline)-aluminum-based org. **light -emitting** devices)

IT 2085-33-8, Tris(8-hydroxyquinolinato) aluminum 123847-85-8, NPB 266349-83-1

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(degrdn. in tris(8-hydroxyquinoline)-aluminum-based org. **light -emitting** devices)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Anderson, J; J Am Chem Soc 1998, V120, P9646 HCAPLUS
- (2) Aziz, H; Appl Phys Lett 1998, V72, P2642 HCAPLUS
- (3) Aziz, H; Appl Phys Lett 1998, V72, P756 HCAPLUS
- (4) Aziz, H; Science 1999, V283, P1900 HCAPLUS
- (5) Burrows, P; Appl Phys Lett 1994, V65, P2922 HCAPLUS
- (6) Kawaharada, M; Synth Met 1997, V91, P113 HCAPLUS
- (7) Kido, J; Appl Phys Lett 1998, V73, P2721 HCAPLUS
- (8) McElvain, J; J Appl Phys 1996, V80, P6002
- (9) Papadimitrakopoulos, F; Chem Mater 1996, V8, P1363 HCAPLUS
- (10) Sheats, J; Science 1996, V273, P884 HCAPLUS
- (11) Shen, Z; Science 1997, V276, P2009 HCAPLUS
- (12) Tang, C; J Appl Phys 1989, V65, P3610 HCAPLUS

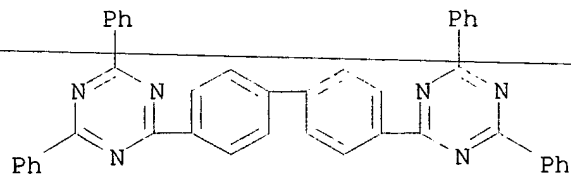
IT 266349-83-1

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(degrdn. in tris(8-hydroxyquinoline)-aluminum-based org. **light -emitting** devices)

RN 266349-83-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-diphenyl- (9CI) (CA INDEX NAME)



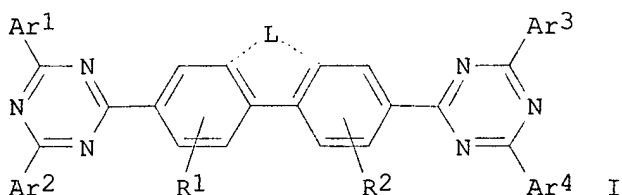
L11 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2002 ACS

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AN 2001:331334 HCAPLUS  
 DN 134:340526  
 TI Triazine compositions  
 IN Hu, Nan-Xing; Popovic, Zoran D.; Ong, Beng S.; Aziz, Hany  
 PA Xerox Corporation, USA  
 SO U.S., 19 pp., Cont.-in-part of U.S. 6,057,048.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM C07D251-24  
 NCL 544180000  
 CC 28-19 (Heterocyclic Compounds (More Than One Hetero Atom))  
 Section cross-reference(s): 73

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6229012	B1	20010508	US 2000-489527	20000121
	US 6057048	A	20000502	US 1998-164753	19981001
PRAI	US 1998-164753	A2	19981001		
OS	MARPAT 134:340526				
GI					



AB Triazine compds. are described by the general formula I (Ar1, Ar2, Ar3, and Ar4 = independently selected aryl and/or aliph. groups; R1 and R2 independently selected H, alkyl, aryl, alkoxy, halo, and cyano; and L is a divalent group which may be absent). Use of the compds. in **electroluminescent** devices is indicated.

ST **electroluminescent** triazine deriv

IT Phosphors

(**electroluminescent**; triazine derivs.)

IT **Electroluminescent** devices

(triazine compns. for)

IT Azines

RL: TEM (Technical or engineered material use); USES (Uses)  
 (triazine derivs.)

IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 50926-11-9, Indium tin oxide 58328-31-7 123847-85-8 182947-41-7, Magnesium 90, silver 10 (atomic)

RL: DEV (Device component use); USES (Uses)

(triazine compns. in **electroluminescent** devices with)

IT ~~266349-83-1P 266349-84-2P 266349-85-3P~~

~~266349-86-4P 337953-32-9P~~

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (triazine derivs.)

IT 95-50-1, 1,2-Dichlorobenzene 100-47-0, Benzonitrile, reactions  
 104-85-8, p-Tolunitrile 620-22-4 874-90-8, 4-Methoxybenzonitrile  
 2351-37-3, 4,4'-Biphenyldicarbonyl chloride 4210-32-6,  
 4-tert-Butylbenzonitrile

RL: RCT (Reactant)  
(triazine derivs.)

IT 266349-88-6 336624-16-9 336624-17-0  
336624-18-1 336624-19-2 337953-25-0  
337953-26-1 337953-27-2 337953-28-3  
337953-29-4 337953-30-7 337953-31-8

RL: TEM (Technical or engineered material use); USES (Uses)  
(triazine derivs.)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

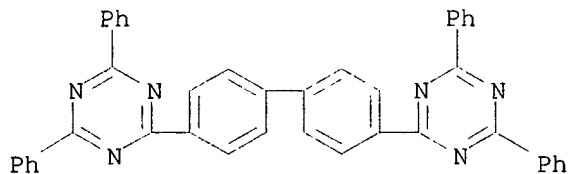
- (1) Arakawa; US 4448222 1984
- (2) Fink; Macromol Symp 1997, V125, P151
- (3) Gurnee; US 3172862 1965 HCAPLUS
- (4) Hamada; Jpn J Appl Phys 1995, V34, PL824 HCAPLUS
- (5) Hu; US 5846666 1998 HCAPLUS
- (6) Hu; US 5891587 1999 HCAPLUS
- (7) Hu; US 5925472 1999 HCAPLUS
- (8) Hu; US 5932363 1999 HCAPLUS
- (9) Hu; US 5942340 1999 HCAPLUS
- (10) Hu; US 5952115 1999 HCAPLUS
- (11) Hu; US 6057048 2000 HCAPLUS
- (12) Matsuura; US 5516577 1996 HCAPLUS
- (13) Mehl; US 3530325 1970 HCAPLUS
- (14) Namiki; US 5429884 1995 HCAPLUS
- (15) Tang; US 4356429 1982 HCAPLUS
- (16) Tang; US 4769292 1988 HCAPLUS
- (17) Tang; US 4885211 1989 HCAPLUS
- (18) Vanslyke; US 4539507 1985
- (19) Vanslyke; US 4720432 1988 HCAPLUS
- (20) Vanslyke; US 5150006 1992 HCAPLUS
- (21) Vanslyke; US 5151629 1992 HCAPLUS

IT 266349-83-1P 266349-84-2P 266349-85-3P  
266349-86-4P 337953-32-9P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic  
preparation); PREP (Preparation); USES (Uses)  
(triazine derivs.)

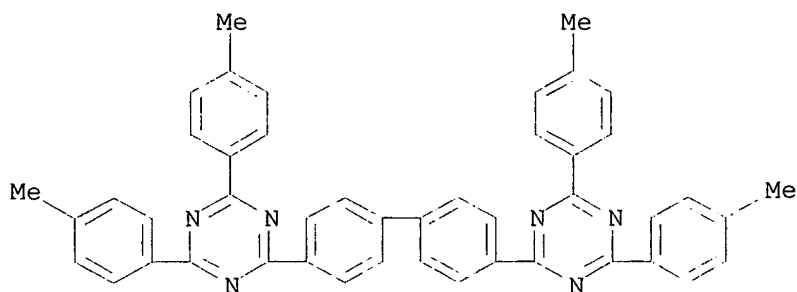
RN 266349-83-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-diphenyl- (9CI) (CA  
INDEX NAME)

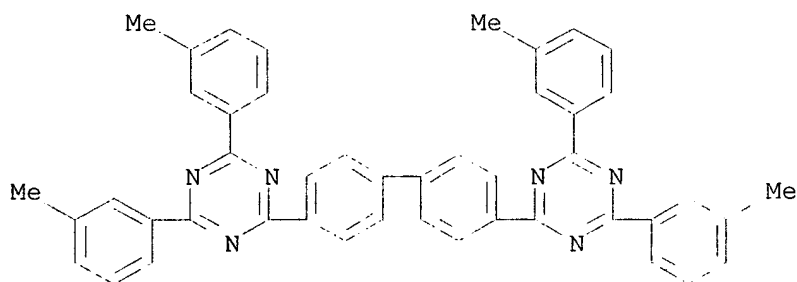


RN 266349-84-2 HCAPLUS

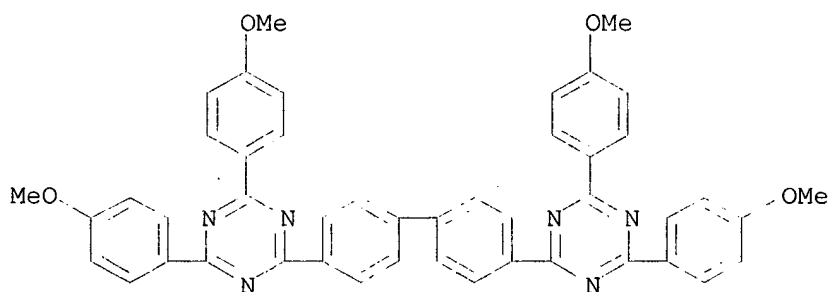
CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(4-methylphenyl)-  
(9CI) (CA INDEX NAME)



RN 266349-85-3 HCAPLUS

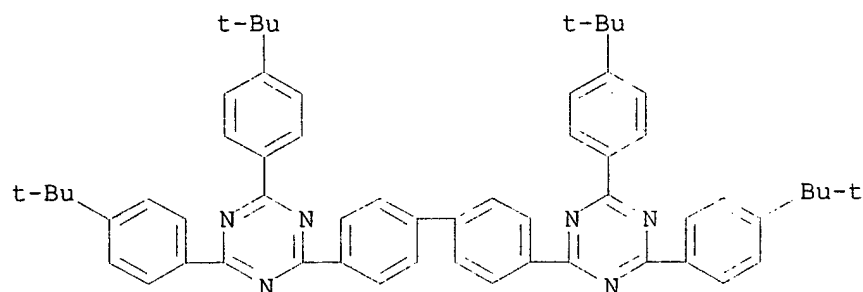
CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(3-methylphenyl)-  
(9CI) (CA INDEX NAME)

RN 266349-86-4 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(4-methoxyphenyl)-  
(9CI) (CA INDEX NAME)

RN 337953-32-9 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis[4-(1,1-  
dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

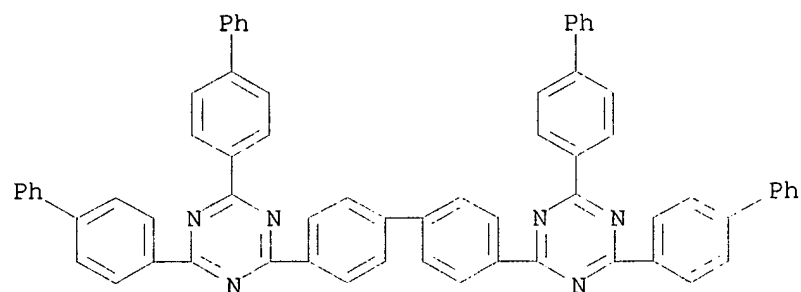


IT 266349-88-6 336624-16-9 336624-17-0  
 336624-18-1 336624-19-2 337953-25-0  
 337953-26-1 337953-27-2 337953-28-3

RL: TEM (Technical or engineered material use); USES (Uses)  
 (triazine derivs.)

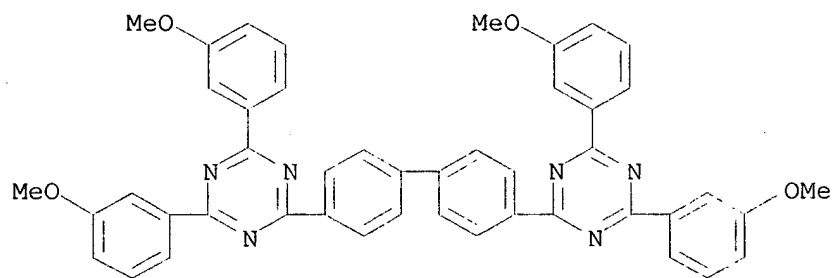
RN 266349-88-6 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



RN 336624-16-9 HCAPLUS

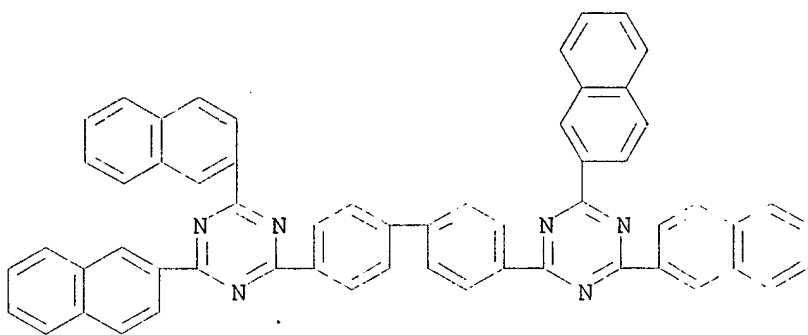
CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(3-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 336624-17-0 HCAPLUS

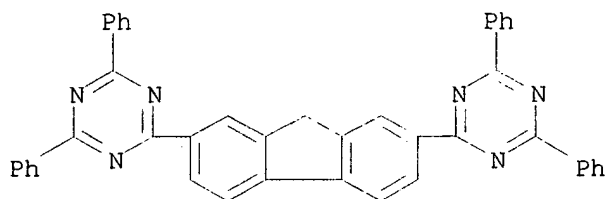
CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-di-2-naphthalenyl- (9CI) (CA INDEX NAME)





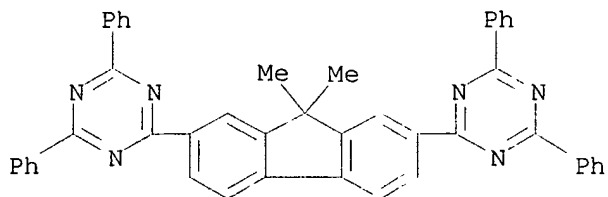
RN 336624-18-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(9H-fluorene-2,7-diyl)bis[4,6-diphenyl- (9CI) (CA INDEX NAME)



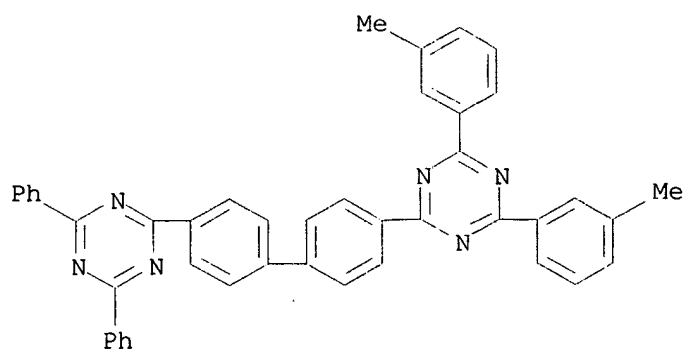
RN 336624-19-2 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[4,6-diphenyl- (9CI) (CA INDEX NAME)

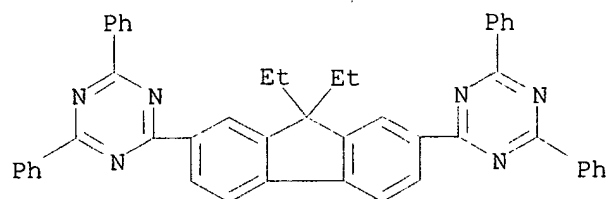


RN 337953-25-0 HCAPLUS

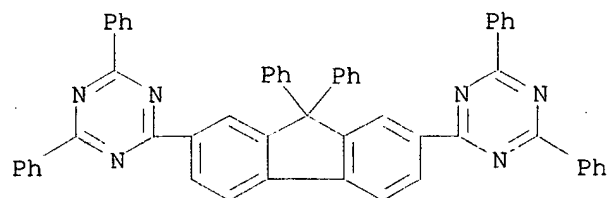
CN 1,3,5-Triazine, 2-[4'-[4,6-bis(3-methylphenyl)-1,3,5-triazin-2-yl][1,1'-biphenyl]-4-yl]-4,6-diphenyl- (9CI) (CA INDEX NAME)



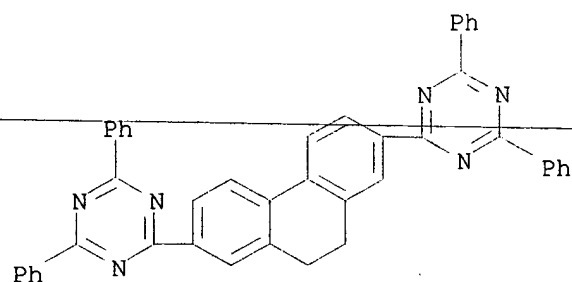
RN 337953-26-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(9,9-diethyl-9H-fluorene-2,7-diyl)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

RN 337953-27-2 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(9,9-diphenyl-9H-fluorene-2,7-diyl)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

RN 337953-28-3 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(9,10-dihydro-2,7-phenanthrenediyl)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

L11 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
AN 2001:312442 HCAPLUS  
DN 134:333997  
TI Triazine derivatives and **electroluminescent (EL)**  
devices using them  
IN Esteghamatian, Mohammad; Hu, Nan-xing; Popovic, Zoran D.; Hor, Ah-mee;  
Qng, Beng S.  
PA Xerox Corporation, USA  
SO U.S., 21 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
IC ICM C07D251-24  
ICS H05B033-14  
NCL 544180000  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)  
Section cross-reference(s): 29, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 6225467	B1	20010501	US 2000-489754	20000121
GI					

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The title triazine derivs. are described by the general formulas I-IV  
(Ar1-4 = independently selected aryl groups; R1, R2 = H, alkyl, aryl,  
alkoxy, halo, and cyano; R3, R4 = -C(R'R'')-, alkylene, O, S, and  
-Si(R'R'')-; and R' and R'' = H, alkyl, alkoxy, and aryl).  
**Electroluminescent** devices employing the derivs. as  
**electron transport** layers are also described.

ST triazine deriv **electroluminescent** device **electron**  
**transport** layer

IT Phosphors  
(**electroluminescent**; triazine derivs. and  
**electroluminescent** devices using them in **electron**  
**transport** layers)

IT **Electroluminescent** devices  
(triazine derivs. and **electroluminescent** devices using them  
in **electron transport** layers)

IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 12614-86-7 50926-11-9,  
Indium tin oxide 58328-31-7 123847-85-8 **266349-86-4**  
**266349-90-0 336624-13-6 336624-14-7**  
**336624-15-8 336624-16-9 336624-17-0**  
**336624-18-1 336624-19-2**  
RL: DEV (Device component use); USES (Uses)  
(triazine derivs. and **electroluminescent** devices using them  
in **electron transport** layers)

IT **6888-33-1P 31274-51-8P 266349-83-1P**  
**266349-84-2P 266349-85-3P**  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic  
preparation); PREP (Preparation); USES (Uses)  
(triazine derivs. and **electroluminescent** devices using them  
in **electron transport** layers)

IT 100-47-0, Benzonitrile, reactions 104-85-8, p-Tolunitrile 620-22-4

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2351-37-3, 4,4'-Biphenyldicarbonyl chloride 2920-38-9,  
4-Biphenylcarbonitrile 14002-51-8, 4-Biphenylcarbonyl chloride  
16107-88-3

RL: RCT (Reactant)

(triazine derivs. and **electroluminescent** devices using them  
in **electron transport** layers)

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Fink; Macromol Symp 1997, V125, P151
- (2) Gurnee; US 3172862 1965 HCAPLUS
- (3) Hamada; Jpn J Appl Phys 1995, V34, PL824 HCAPLUS
- (4) Hu; US 5891587 1999 HCAPLUS
- (5) Hu; US 5925472 1999 HCAPLUS
- (6) Hu; US 5932363 1999 HCAPLUS
- (7) Hu; US 5942340 1999 HCAPLUS
- (8) Hu; US 5952115 1999 HCAPLUS
- (9) Hu; US 6057048 2000 HCAPLUS
- (10) Matsuura; US 5516577 1996 HCAPLUS
- (11) Mehl; US 3530325 1970 HCAPLUS
- (12) Namiki; US 5429884 1995 HCAPLUS
- (13) Tang; US 4356429 1982 HCAPLUS
- (14) Tang; US 4769292 1988 HCAPLUS
- (15) Tang; US 4885211 1989 HCAPLUS
- (16) Vanslyke; US 4539507 1985
- (17) Vanslyke; US 4720432 1988 HCAPLUS
- (18) Vanslyke; US 5150006 1992 HCAPLUS
- (19) Vanslyke; US 5151629 1992 HCAPLUS

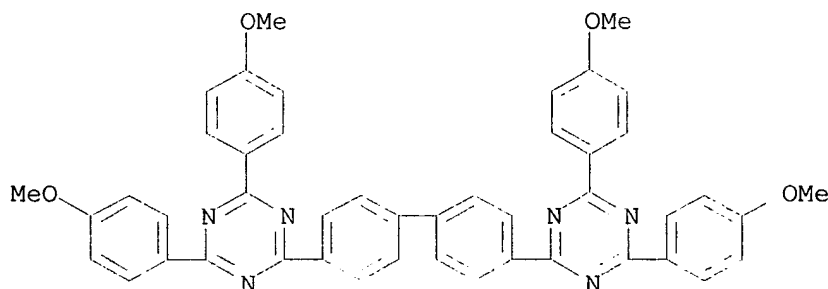
IT 266349-86-4 266349-90-0 336624-13-6  
336624-14-7 336624-15-8 336624-16-9  
336624-17-0 336624-18-1 336624-19-2

RL: DEV (Device component use); USES (Uses)

(triazine derivs. and **electroluminescent** devices using them  
in **electron transport** layers)

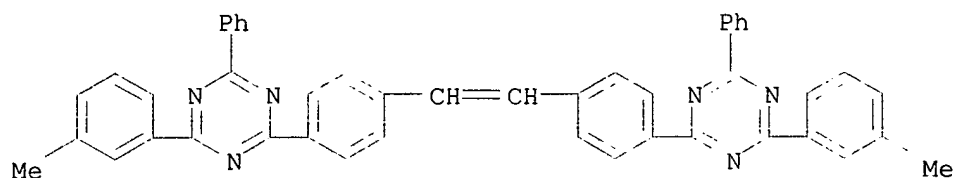
RN 266349-86-4 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(4-methoxyphenyl)-  
(9CI) (CA INDEX NAME)



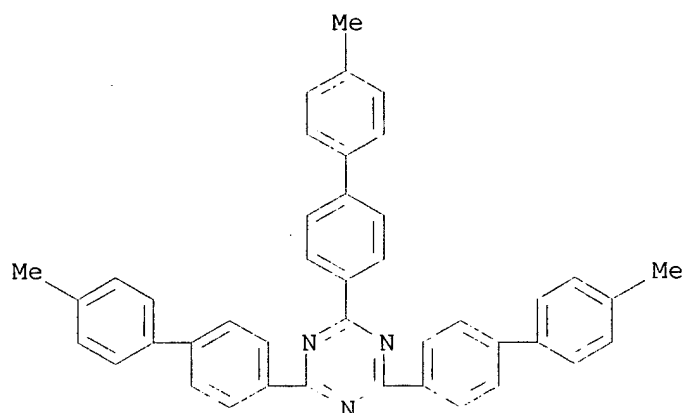
RN 266349-90-0 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,1-phenylene)bis[4-(3-  
methylphenyl)-6-phenyl-(9CI) (CA INDEX NAME)



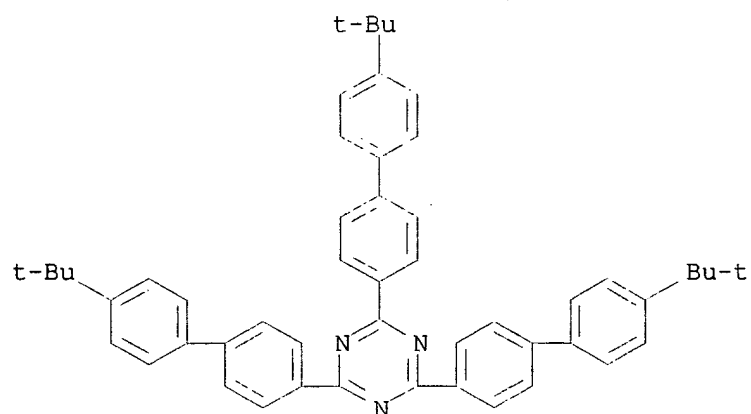
RN 336624-13-6 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris(4'-methyl[1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



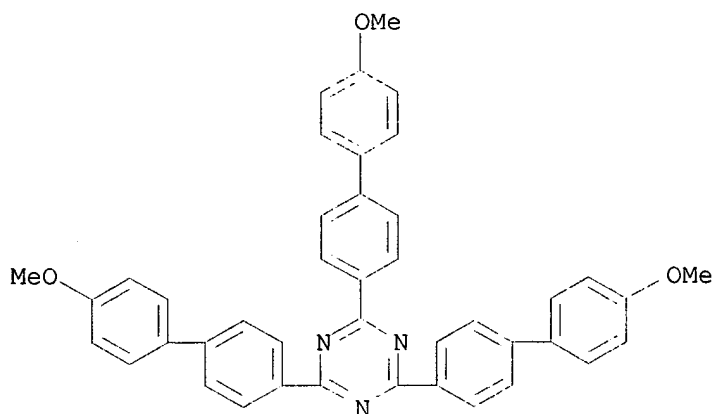
RN 336624-14-7 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris(4'-(1,1-dimethylethyl)[1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)

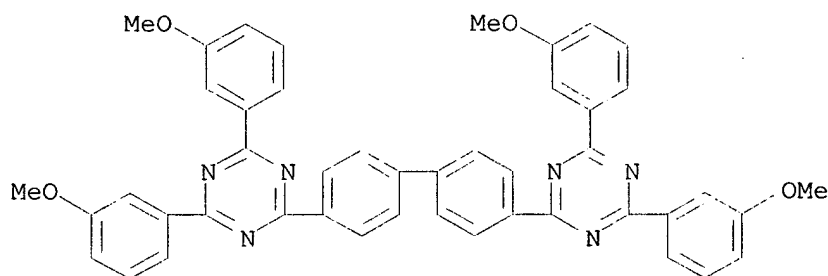


RN 336624-15-8 HCAPLUS

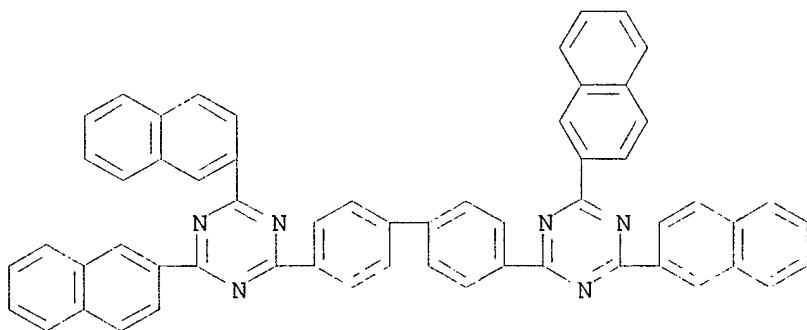
CN 1,3,5-Triazine, 2,4,6-tris(4'-methoxy[1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



RN 336624-16-9 HCAPLUS

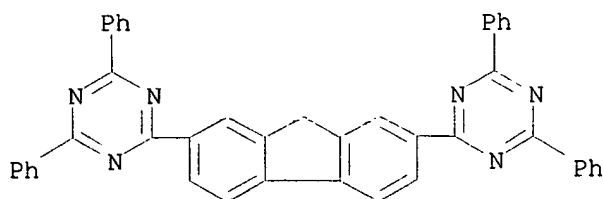
CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(3-methoxyphenyl)-  
(9CI) (CA INDEX NAME)

RN 336624-17-0 HCAPLUS

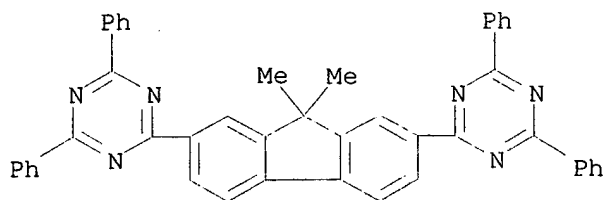
CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-di-2-naphthalenyl]-  
(9CI) (CA INDEX NAME)

RN 336624-18-1 HCAPLUS

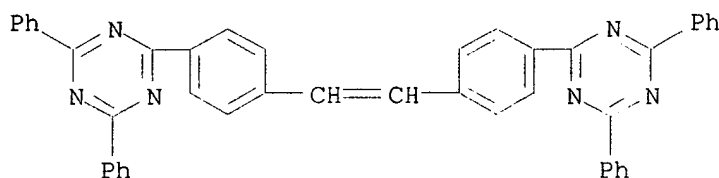
CN 1,3,5-Triazine, 2,2'-9H-fluorene-2,7-diylbis[4,6-diphenyl]- (9CI) (CA  
INDEX NAME)



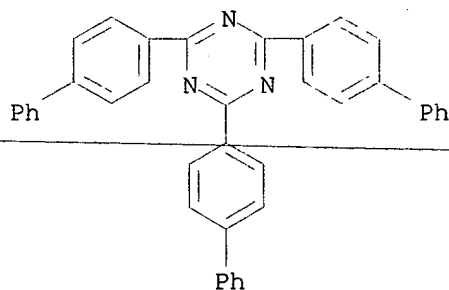
RN 336624-19-2 HCAPLUS  
 CN 1,3,5-Triazine, 2,2'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[4,6-diphenyl-  
 (9CI) (CA INDEX NAME)



IT 6888-33-1P 31274-51-8P 266349-83-1P  
 266349-84-2P 266349-85-3P  
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic  
 preparation); PREP (Preparation); USES (Uses)  
 (triazine derivs. and **electroluminescent** devices using them  
 in **electron transport** layers)  
 RN 6888-33-1 HCAPLUS  
 CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl-di-4,1-phenylene)bis[4,6-diphenyl-  
 (9CI) (CA INDEX NAME)

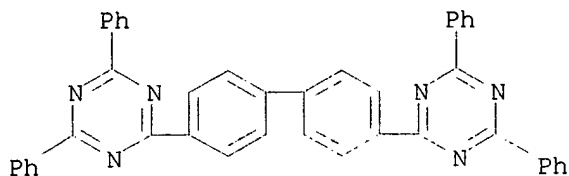


RN 31274-51-8 HCAPLUS  
 CN 1,3,5-Triazine, 2,4,6-tris[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



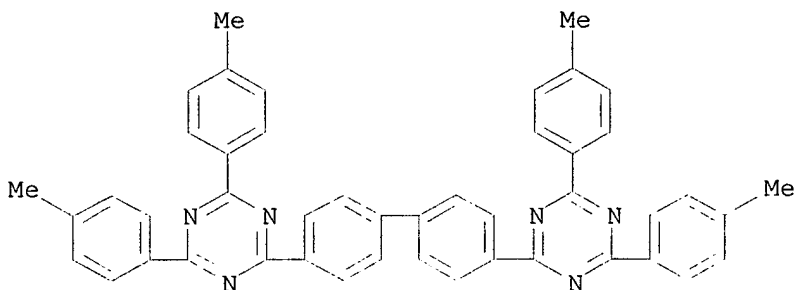
RN 266349-83-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-diphenyl- (9CI) (CA INDEX NAME)



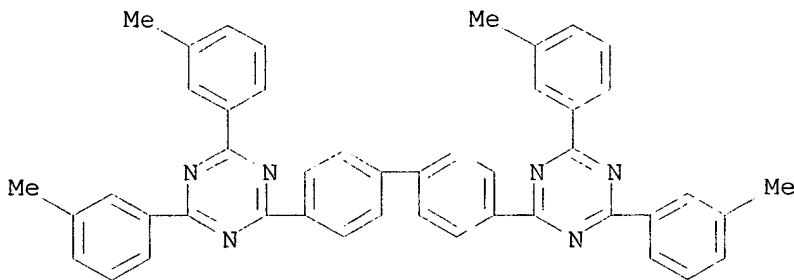
RN 266349-84-2 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 266349-85-3 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



L11 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:441449 HCAPLUS

DN 133:81409

TI **Electroluminescent material, electroluminescent element and color conversion filter**

IN ~~Kita, Hiroshi; Suzuri, Yoshiyuki; Yamada, Taketoshi; Nakamura, Kazuaki; Ueda, Noriko; Okubo, Yasushi~~

PA Konica Corporation, Japan

SO Eur. Pat. Appl., 80 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C09K011-06

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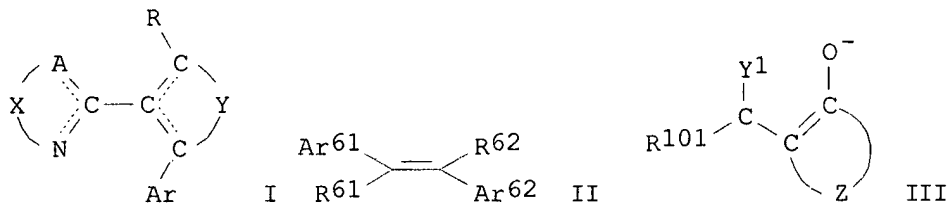
ICS H05B033-14; G02B005-20

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1013740	A2	20000628	EP 1999-125813	19991223
	EP 1013740	A3	20020130		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	KR 2000052560	A	20000825	KR 1999-61534	19991224
	JP 2001143869	A2	20010525	JP 1999-365996	19991224
PRAI	JP 1998-370452	A	19981225		
	JP 1999-246404	A	19990831		
OS	MARPAT 133:81409				
GI					



AB **Electroluminescent** materials are described which are based on derivs. of arom. heterocycles, binaphthyls, and triaryl amines which include substituents (esp. biaryl substituents) contg. bonds capable of giving internal rotational isomerism, or on compds. described by the general formulas I (Ar = aryl; A = C, N, S or O; X = group of atoms necessary to form 5- or 6-member N contg. arom. heterocyclic ring; Y = group of atoms necessary to form 5- or 6-member arom. hydrocarbon or arom. heterocyclic ring, provided that the bond of C-N, C-A or C-C in the formula is a single or double bond; and R = H, substituent, or Ar) or II (Ar61 and Ar62 = each aryl or arom. heterocyclic; R61 and R62 = each H or substituent, provided that .gtoreq.1 of Ar61, Ar62, R61, and R62 = biaryl group contg. a bond capable of giving internal rotational isomerism or a group contg. such a biaryl group); rare earth metal complex fluorescent substances contg. at least an anionic ligand represented by the formula III (R101 = H or substituent; Y1 = O, S or N(R102); R102 = H or substituent; and Z = atoms forming a 4- to 8-membered ring) are also described. **Electroluminescent** elements comprising an **electroluminescent** material and a fluorescent substance **emitting light** having an emission max. at the wavelength different from that of **light emitted** from the **electroluminescent** material upon absorption of the **light emitted** from the **electroluminescent** material are also described, as are color conversion filters comprising a fluorescent substance **emitting light** having an emission max. at 400-700 nm upon absorption of the **light emitted** from the **electroluminescent** material.

ST **electroluminescent** compd internal rotation isomer substituent; **electroluminescent** device; rare earth complex fluorescent material color conversion filter

IT **Electroluminescent** devices  
Fluorescent substances

Optical filters

Semiconductor **electroluminescent** devices

(**electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT Phosphors

(**electroluminescent**; **electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT 135-70-6, p-Quaterphenyl 2085-33-8, Tris(8-hydroxyquinolinato)aluminum  
50926-11-9, Indium tin oxide 65181-78-4, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine 73364-01-9 78732-97-5  
96761-79-4, 5,5'-Bi-1,10-phenanthroline 100294-74-4 219843-55-7  
278601-15-3 278601-34-6 278610-55-2 278610-56-3 278610-58-5  
278610-92-7 278610-94-9 278610-95-0 278610-97-2  
278611-00-0 278611-01-1 278611-03-3 278611-05-5 278611-09-9  
278611-10-2 278611-11-3 278611-12-4 278611-13-5 278611-15-7  
278611-16-8 278611-23-7 278611-25-9 278611-26-0 278611-27-1  
278611-28-2 278611-29-3 278611-30-6 278611-31-7 278611-33-9  
278794-68-6 278794-70-0 278794-72-2 278794-73-3 278794-75-5  
278794-77-7

RL: DEV (Device component use); USES (Uses)

(**electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT 78-10-4 2602-34-8, .gamma.-Glycidoxypropyltriethoxysilane 10022-31-8,  
Barium nitrate 14284-86-7, Europium (III) acetylacetonate

RL: RCT (Reactant)

(**electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT 49610-33-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(**electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT 12254-04-5, Barium magnesium aluminate (BaMgAl10O17) 13566-12-6, Yttrium vanadate (YVO4)

RL: DEV (Device component use); USES (Uses)

(europium-activated; **electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT 13778-49-9P, Barium silicate (Ba2SiO4)

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(europium-activated; **electroluminescent** materials based on compds. including substituents with internal rotation isomers and rare earth complex-based fluorescent materials and **electroluminescent** elements and color conversion filters)

IT 7440-53-1P, Europium, uses 16910-54-6P, Europium +2, uses

RL: DEV (Device component use); IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(phosphors activated by; **electroluminescent** materials based on compds. including substituents with internal rotation isomers and

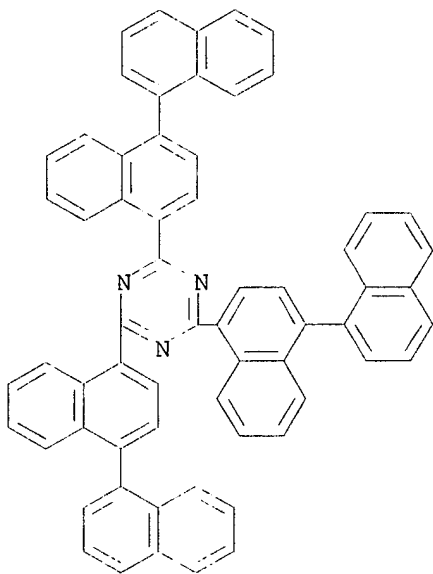
rare earth complex-based fluorescent materials and  
**electroluminescent** elements and color conversion filters)

IT 22541-18-0, Europium +3, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)  
(phosphors activated by; **electroluminescent** materials based  
on compds. including substituents with internal rotation isomers and  
rare earth complex-based fluorescent materials and  
**electroluminescent** elements and color conversion filters)

IT 278610-92-7  
RL: DEV (Device component use); USES (Uses)  
(**electroluminescent** materials based on compds. including  
substituents with internal rotation isomers and rare earth  
complex-based fluorescent materials and **electroluminescent**  
elements and color conversion filters)

RN 278610-92-7 HCAPLUS

CN 1,3,5-Triazine, 2,4,6-tris([1,1'-binaphthalen]-4-yl)- (9CI) (CA INDEX  
NAME)



L11 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:283952 HCAPLUS

DN 132:327508

TI **Electroluminescent** (EL) devices

IN Hu, Nan-xing; Esteghamatian, Mohammad; Qi, Yu; Popovic, Zoran D.; Ong,  
Beng S.; Hor, Ah-mee

PA Xerox Corp., USA

SO U.S., 31 pp.

~~CODEN: USXXAM~~

DT Patent

LA English

IC ICM H05B033-14

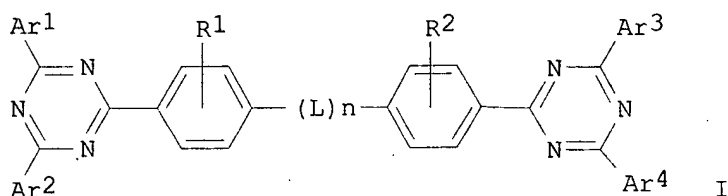
NCL 428690000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)

Section cross-reference(s): 28, 76

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6057048	A	20000502	US 1998-164753	19981001
	US 6229012	B1	20010508	US 2000-489527	20000121
PRAI	US 1998-164753	A2	19981001		
OS	MARPAT 132:327508				
GI					



AB **Electroluminescent** devices comprising an anode, a hole transporting layer, a **light emitting** layer, and a cathode are described in which the **light emitting** layer contains a component described by the general formula I (Ar1-4 = independently selected aryl or aliph. groups; R1 and R2 = independently selected from hydrogen, aliph., halogen, and cyano; L = a conjugated bivalent linking group; and n = 0-3); the compds. may serve as hosts for selected fluorescent dyes.

ST triazine deriv **electroluminescent** device

IT **Electroluminescent** devices

Semiconductor **electroluminescent** devices

(**electroluminescent** devices using triazine derivs.)

IT 91-64-5, Coumarin 12798-95-7 37271-44-6 58328-31-7 123847-85-8  
 266349-86-4 266349-87-5 266349-88-6  
 266349-89-7 266349-92-2 266349-93-3  
 266349-94-4 266349-95-5 266349-96-6  
 266349-97-7 266349-98-8 266349-99-9 266350-00-9  
 266350-01-0

RL: DEV (Device component use); USES (Uses)

(**electroluminescent** devices using triazine derivs.)

IT 198-55-0, Perylene 517-51-1, Rubrene 1499-10-1, 9,10-Diphenylanthracene. 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 16043-42-8 19205-19-7, N,N'-Dimethylquinacridone 222402-84-8  
 266349-59-1 266349-61-5 266349-63-7

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(**electroluminescent** devices using triazine derivs.)

IT 6888-33-1P 266349-83-1P 266349-84-2P  
 266349-85-3P 266349-90-0P 266349-91-1P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(**electroluminescent** devices using triazine derivs.)

IT 95-50-1, 1,2-Dichlorobenzene 100-47-0, Benzonitrile, reactions  
 104-85-8, p-Tolunitrile 620-22-4 2351-37-3, 4,4'-Biphenyldicarbonyl  
 chloride 7704-34-9, Sulfur, reactions 16107-88-3

RL: RCT (Reactant)

(**electroluminescent** devices using triazine derivs.)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

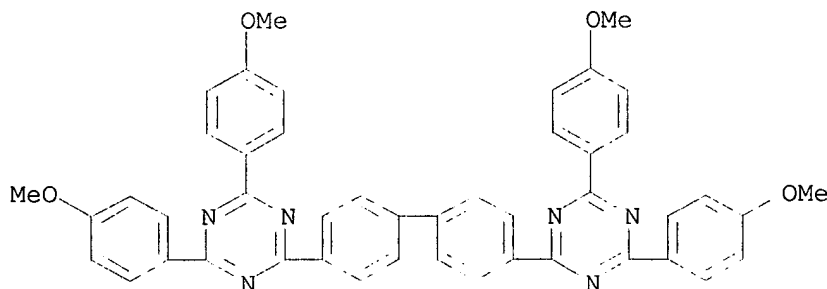
(1) Fink; Makromol Symp 1997, V125, P151

- (2) Matsuura; US 5516577 1996 HCAPLUS  
(3) Mehl; US 3530325 1970 HCAPLUS  
(4) Namiki; US 5429884 1995 HCAPLUS  
(5) Tang; US 4356429 1982 HCAPLUS  
(6) Tang; US 4769292 1988 HCAPLUS  
(7) Tang; US 4885211 1989 HCAPLUS  
(8) Tang; US 5409783 1995 HCAPLUS  
(9) VanSlyke; US 4539507 1985  
(10) VanSlyke; US 4720432 1988 HCAPLUS  
(11) VanSlyke; US 5151629 1992 HCAPLUS  
(12) Van Slyke; US 5150006 1992 HCAPLUS  
IT 266349-86-4 266349-87-5 266349-88-6  
266349-89-7 266349-92-2 266349-93-3  
266349-94-4 266349-95-5 266349-96-6  
266349-97-7 266349-98-8

RL: DEV (Device component use); USES (Uses)  
(electroluminescent devices using triazine derivs.)

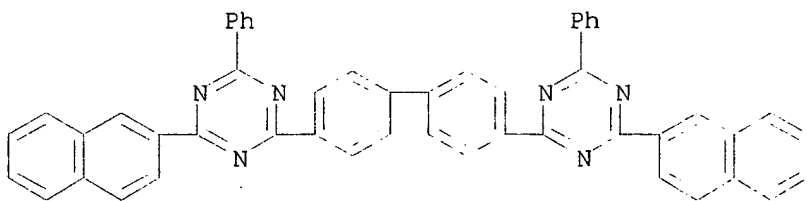
RN 266349-86-4 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(4-methoxyphenyl)-  
(9CI) (CA INDEX NAME)



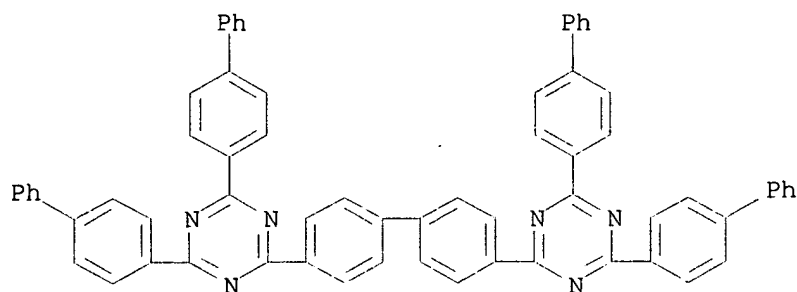
RN 266349-87-5 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4-(2-naphthalenyl)-6-  
phenyl- (9CI) (CA INDEX NAME)



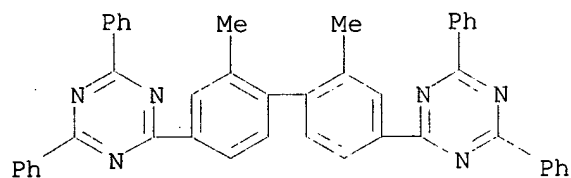
RN 266349-88-6 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis[1,1'-biphenyl]-4-  
yl- (9CI) (CA INDEX NAME)



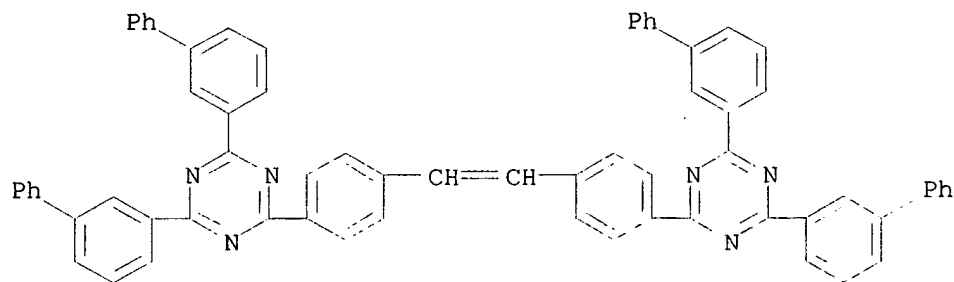
RN 266349-89-7 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(2,2'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis[4,6-diphenyl- (9CI) (CA INDEX NAME)



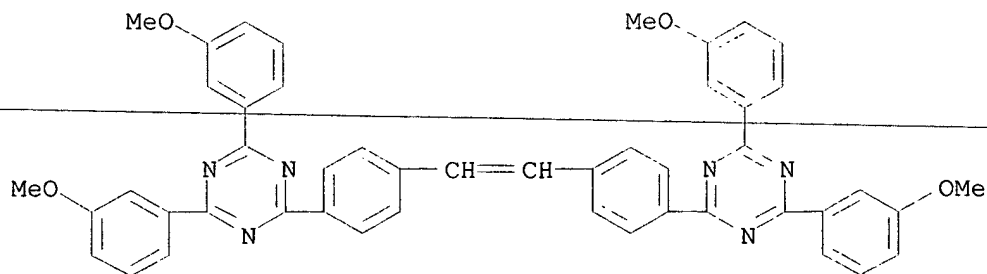
RN 266349-92-2 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,1-phenylene)bis[4,6-bis([1,1'-biphenyl]-3-yl)- (9CI) (CA INDEX NAME)

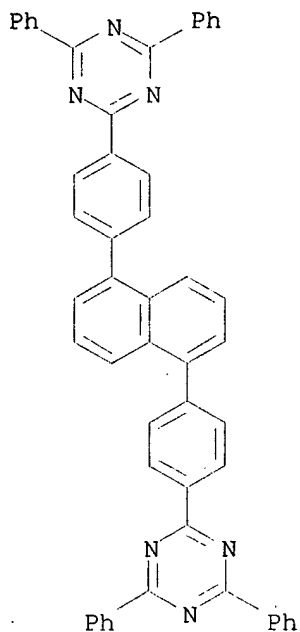


RN 266349-93-3 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,1-phenylene)bis[4,6-bis(3-methoxyphenyl)- (9CI) (CA INDEX NAME)



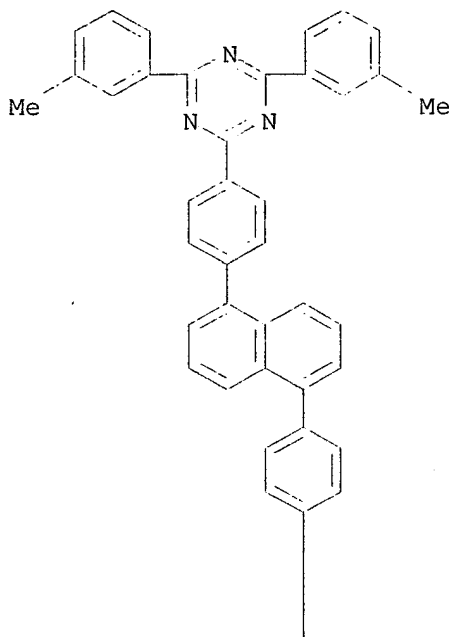
RN 266349-94-4 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,5-naphthalenediyl-di-4,1-phenylene)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

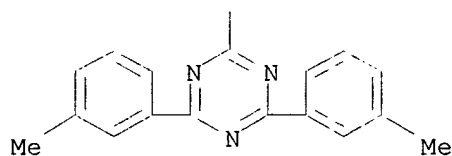
RN 266349-95-5 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,5-naphthalenediyl-di-4,1-phenylene)bis[4,6-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)

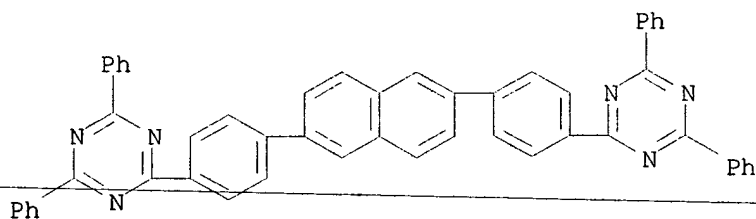
PAGE 1-A



PAGE 2-A



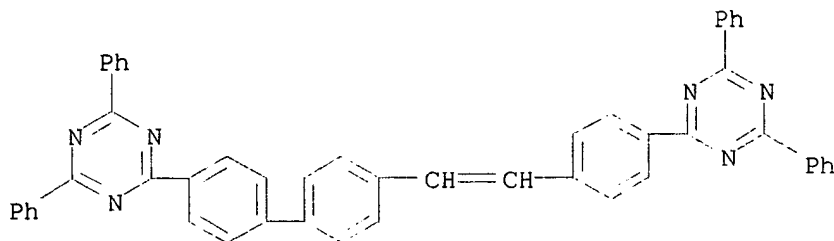
RN 266349-96-6 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(2,6-naphthalenediyl-di-4,1-phenylene)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

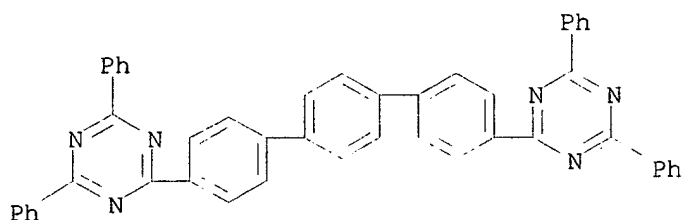
RN 266349-97-7 HCAPLUS

CN 1,3,5-Triazine, 4-[4-[2-[4'-(4,6-diphenyl-1,3,5-triazin-2-yl)[1,1'-  
biphenyl]-4-yl]ethenyl]phenyl]-2,6-diphenyl- (9CI) (CA INDEX NAME)





RN 266349-98-8 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1':4',1''-terphenyl]-4,4''-diylbis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

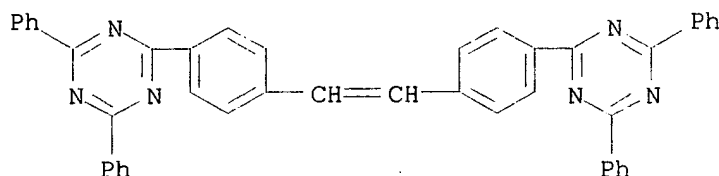
IT 6888-33-1P 266349-83-1P 266349-84-2P

266349-85-3P 266349-90-0P 266349-91-1P

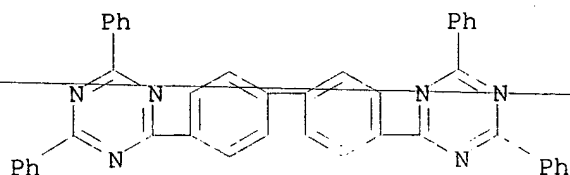
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic  
preparation); PREP (Preparation); USES (Uses)

(electroluminescent devices using triazine derivs.)

RN 6888-33-1 HCAPLUS

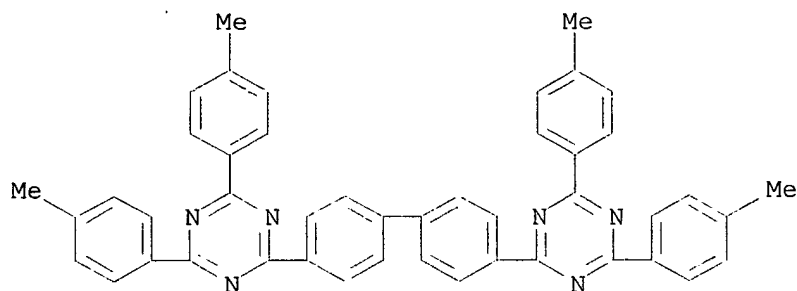
CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,1-phenylene)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)

RN 266349-83-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-diphenyl- (9CI) (CA  
INDEX NAME)

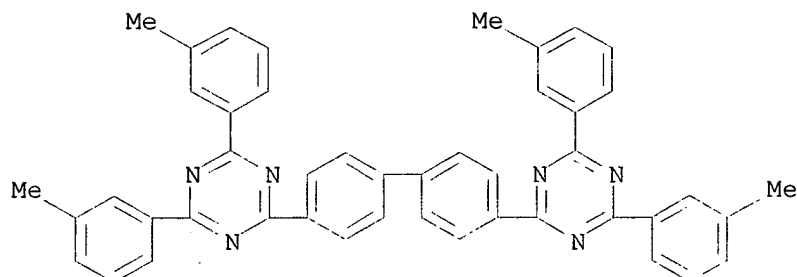
RN 266349-84-2 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(4-methylphenyl)-  
(9CI) (CA INDEX NAME)



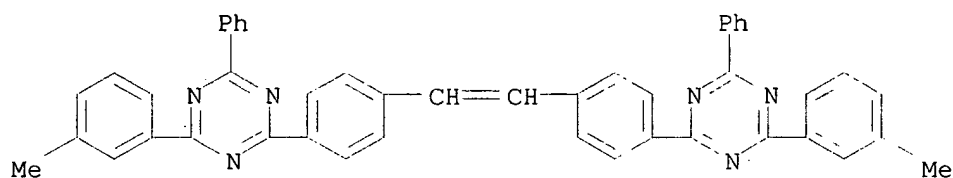
RN 266349-85-3 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[1,1'-biphenyl]-4,4'-diylbis[4,6-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



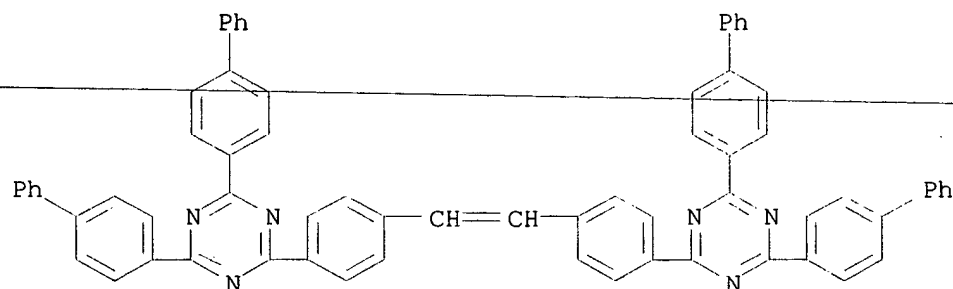
RN 266349-90-0 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,1-phenylenebis[4-(3-methylphenyl)-6-phenyl- (9CI) (CA INDEX NAME)



RN 266349-91-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,1-phenylenebis[4,6-bis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



L11 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:183954 HCAPLUS

DN 128:244520

TI Triazine polymers and their use in **electroluminescent** arrangements

IN Wehrmann, Rolf; Schmidt, Hans-Werner; Fink, Ralph; Thelakkat, Mukundan

PA Bayer A.-G., Germany; Wehrmann, Rolf; Schmidt, Hans-Werner; Fink, Ralph; Thelakkat, Mukundan

SO PCT Int. Appl., 55 pp.

CODEN: PIXXD2

DT Patent

LA German

IC ICM C08G073-06

ICS C08G073-10; C09K011-06

CC 35-5 (Chemistry of Synthetic High Polymers)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9811150	A1	19980319	WO 1997-EP4802	19970904
	W: JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	DE 19644930	A1	19980319	DE 1996-19644930	19961029
	EP 925319	A1	19990630	EP 1997-943830	19970904
	EP 925319	B1	20011205		
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, PT, IE, FI				
	JP 2001503077	T2	20010306	JP 1998-513219	19970904
	AT 210163	E	20011215	AT 1997-943830	19970904
	KR 2000036127	A	20000626	KR 1999-7002161	19990315
PRAI	DE 1996-19637600	A	19960916		
	DE 1996-19644930	A	19961029		
	WO 1997-EP4802	W	19970904		
AB	Triazine-based polyethers and polyimides suitable for use in <b>electroluminescent</b> devices are prepd. from dihalo s-triazines or s-triazine diamines and bisphenols or arom. dianhydrides. Thus, 2,4-bis(4-fluorophenyl)-6-phenyl-s-triazine was treated with bisphenol AF in the presence of potassium carbonate to give a copolymer having no.-av. mol. wt. 26 .times. 103 and glass transition temp. 241.degree.. A polyether prepd. from bisphenol AF and 2,4-bis(4-fluorophenyl)-6-(3-quinolyl)-s-triazine was used in the fabrication of a <b>light emitting diode</b> composed of indium-tin oxide, poly(p-phenylenevinylene), polyether and aluminum. The diode displayed onset voltage 4 V, PMmax 4 .times. 10-6, and Imax 50, vs. 4 V, 5 .times. 10-10, and 300, resp., for a diode prepd. with the polyether layer.				
ST	triazine based fluorine contg polymer; polyether triazine based fluorine contg; polyimide triazine based fluorine contg; <b>light emitting diode</b> triazine based polymer; <b>electroluminescent</b> device triazine based polymer				
IT	Polyethers, preparation Polyimides, preparation RL: SPN (Synthetic preparation); PREP (Preparation) (fluorine- and triazine-group-contg.; triazine polymers for use in <b>electroluminescent</b> arrangement)				
IT	Polymerization (of triazine derivs. with bisphenols and arom. dianhydrides)				
IT	Fluoropolymers, preparation RL: SPN (Synthetic preparation); PREP (Preparation) (polyether-, triazine group-contg.; triazine polymers for use in <b>electroluminescent</b> arrangement)				

IT Fluoropolymers, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(polyimide-, triazine group-contg.; triazine polymers for use in  
**electroluminescent** arrangement)

IT **Electroluminescent** devices  
(triazine polymers for use in)

IT 188788-80-9P  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(in prepn. of triazine polymers for use in **electroluminescent**  
arrangements)

IT 90-30-2P, N-(1-Naphthyl)-aniline 351-98-4P 22961-45-1P,  
N-(4-Pyridyl)-aniline  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(in prepn. of triazine polymers for use in **electroluminescent**  
arrangements)

IT 456-14-4P, 4-Fluorobenzamidinium hydrochloride  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(intermediate; in prepn. of triazine polymers for use in  
**electroluminescent** arrangements)

IT 31207-01-9P 157141-82-7P, 2,4-Bis(4-fluorophenyl)-6-phenyl-s-triazine  
**188788-62-7P** 188788-67-2P 188788-74-1P 188788-78-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(monomer; for prepn. of triazine polymers for use in  
**electroluminescent** arrangements)

IT 62-53-3, Benzenamine, reactions 538-51-2, N-Benzylideneaniline  
1194-02-1, 4-Fluorobenzonitrile 3459-99-2, 3-Nitrobenzamidinium  
RL: RCT (Reactant)  
(reactant; in prepn. of triazine polymers for use in  
**electroluminescent** arrangements)

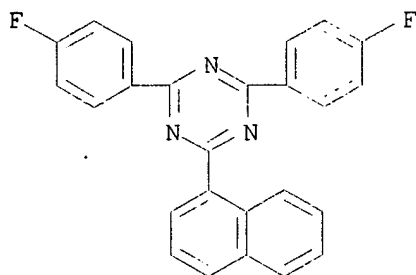
IT 188788-79-6P  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(triazine polymers for use in **electroluminescent**  
arrangements)

IT 188788-56-9P 188788-60-5P **188788-63-8P** 188788-65-0P  
188788-68-3P 188788-70-7P 188788-75-2P 188788-77-4P 204910-08-7P  
204910-09-8P 204910-10-1P 204910-11-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(triazine polymers for use in **electroluminescent**  
arrangements)

IT **188788-62-7P**  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(monomer; for prepn. of triazine polymers for use in  
**electroluminescent** arrangements)

RN 188788-62-7 HCAPLUS

CN 1,3,5-Triazine, 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)- (9CI) (CA  
INDEX NAME)



IT 188788-63-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(triazine polymers for use in **electroluminescent**  
arrangements)

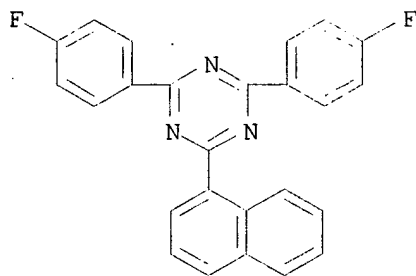
RN 188788-63-8 HCAPLUS

CN Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer  
with 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)-1,3,5-triazine (9CI) (CA  
INDEX NAME)

CM 1

CRN 188788-62-7

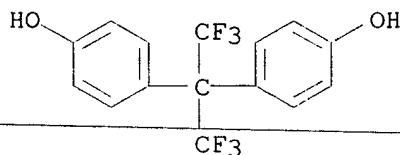
CMF C25 H15 F2 N3



CM 2

CRN 1478-61-1

CMF C15 H10 F6 O2



L11 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:90698 HCAPLUS

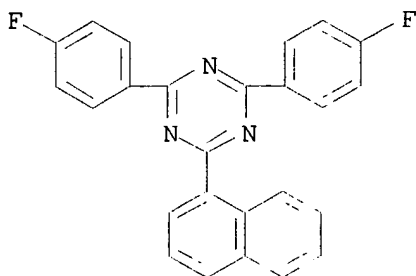
DN 128:186037

TI Aromatic ethers with 1,3,5-triazine units as hole blocking/

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

- electron transport** materials in LEDs
- AU Fink, Ralf; Frenz, Carsten; Thelakkat, Mukundan; Schmidt, Hans-Werner  
CS Makromolekulare Chemie I, Bayreuther Institut Makromolekulforschung,  
Universitat Bayreuth, Bayreuth, 95440, Germany  
SO Proc. SPIE-Int. Soc. Opt. Eng. (1997), 3148(Organic Light-Emitting  
Materials and Devices), 194-200  
CODEN: PSISDG; ISSN: 0277-786X  
PB SPIE-The International Society for Optical Engineering  
DT Journal  
LA English  
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)  
Section cross-reference(s): 38, 76
- AB Various fluoro-functionalized arom. 1,3,5-triazine monomers were prepd. A  
series low molar mass and poly-(1,3,5-triazine)-ethers were synthesized by  
a condensation reaction. The polymers as well as the low molar mass  
comps. have excellent thermal stability and are amorphous. To examine  
the potential to apply these comps. in org. **electroluminescent**  
devices, the redox properties were studied by cyclic voltammetry. The  
monomers have high electron affinity and reach LUMO values at -2.7 to -3.1  
eV. Addnl. high oxidn. stability with HOMO values <-6.4 eV follows hole  
blocking capabilities. This opens the possibility to use 1,3,5-triazine  
contg. materials as electron injecting/hole blocking layer in LEDs. First  
LED results are in agreement to these high electron affinities.
- ST arom ether triazine hole blocking LED
- IT **Electroluminescent** devices  
(arom. ethers with triazine units as hole blocking/**electron**  
**transport** materials in)
- IT Electrochemical redox reaction  
(arom. ethers with triazine units as hole blocking/**electron**  
**transport** materials in LEDs)
- IT Polymers, properties  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(arom. ethers with triazine units as hole blocking/**electron**  
**transport** materials in LEDs)
- IT Electric transport properties  
(arom. ethers with triazine units in LEDs for)
- IT Hole (electron)  
(arom. ethers with triazine units in LEDs for blocking)
- IT Ethers, properties  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(arom. ethers; with triazine units as hole blocking/**electron**  
**transport** materials in LEDs)
- IT Aromatic hydrocarbons, properties  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(ethers; with triazine units as hole blocking/**electron**  
**transport** materials in LEDs)
- IT 157141-82-7 184895-07-6 188788-60-5 **188788-62-7**  
188788-65-0 188788-78-5 188788-80-9 203450-08-2 203450-09-3  
203450-10-6  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(hole blocking/**electron transport** materials in  
LEDs)
- IT 618-39-3, Benzamidine 2339-59-5, 4-Fluorobenzamidine  
RL: RCT (Reactant)  
(reaction with anilidene derivs.)
- IT 538-51-2 890-50-6 5676-81-3 13213-06-4  
RL: RCT (Reactant)  
(reaction with benzamidine derivs.)
- IT 1478-61-1

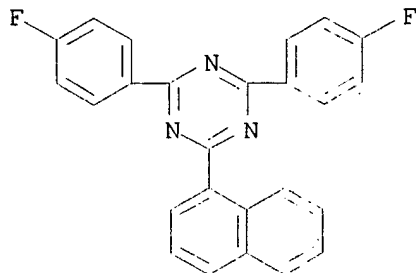
RL: RCT (Reactant)  
(reaction with triazine units)  
IT 188788-62-7  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(hole blocking/**electron transport** materials in  
LEDs)  
RN 188788-62-7 HCAPLUS  
CN 1,3,5-Triazine, 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)- (9CI) (CA  
INDEX NAME)



L11 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
AN 1997:805966 HCAPLUS  
DN 128:3895  
TI Synthesis and Characterization of Aromatic Poly(1,3,5-triazine-ether)s for  
**Electroluminescent** Devices  
AU Fink, Ralf; Frenz, Carsten; Thelakkat, Mukundan; Schmidt, Hans-Werner  
CS Makromolekulare Chemie I and Bayreuther Institut fuer  
Makromolekueulforschung (BIMF), Universitaet Bayreuth, Bayreuth, 95440,  
Germany  
SO Macromolecules (1997), 30(26), 8177-8181  
CODEN: MAMOBX; ISSN: 0024-9297  
PB American Chemical Society  
DT Journal  
LA English  
CC 35-2 (Chemistry of Synthetic High Polymers)  
AB Various difluoro functionalized arom. 1,3,5-triazine monomers were prepd.  
A series of poly(1,3,5-triazine-ether)s was synthesized by  
polycondensation with 4,4'-hexafluoroisopropylidenebis[phenol]. The  
polymers have excellent thermal stability and are amorphous with glass  
transition temps. in the range 190-250.degree.. In order to examine the  
potential application these polymers may possess for use in org.  
**electroluminescent** devices, the redox properties were studied by  
cyclic voltammetry. The monomers have high electron affinities and reach  
LUMO values in the range of -2.7 to -3.1 eV. This opens the possibility  
to utilize 1,3,5-triazine-contg. materials as electron injecting/hole  
blocking layers in **light emitting** devices (LEDs).  
Initial LED results are in accordance with these high electron affinities.  
~~ST difluoro triazine monomer prepn polymn~~  
IT Polyethers, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(fluorine- and triazine group-contg.; synthesis and characterization of  
arom. poly(1,3,5-triazine-ethers) for use in multilayer **light**  
**emitting** devices)  
IT Polymerization  
(of arom. difluoro triazine derivs. with hexafluoroisopropylidenebisph  
enol)

- IT Fluoropolymers, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-, triazine group-contg.; synthesis and characterization of  
arom. poly(1,3,5-triazine-ethers) for use in multilayer **light**  
**emitting** devices)
- IT Electroluminescent devices  
(synthesis and characterization of arom. poly(1,3,5-triazine-ethers)  
for use in multilayer **light emitting** devices)
- IT 4278-01-7P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(intermediate; in synthesis of difluoro arom. triazine monomers for  
prepn. of polymers as hole blocking/**electron**  
**transport** layers for use in multilayer **light**  
**emitting** devices)
- IT 157141-82-7P 188788-62-7P 188788-67-2P 188788-74-1P  
188788-78-5P  
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); SPN  
(Synthetic preparation); PREP (Preparation); PROC (Process)  
(monomer; for prepn. of polymers as hole blocking/**electron**  
**transport** layers for use in multilayer **light**  
**emitting** devices)
- IT 62-53-3, Benzenamine, reactions 64-17-5, Ethanol, reactions 66-77-3,  
1-Naphthaldehyde 455-19-6, 4-(Trifluoromethyl)benzaldehyde 872-85-5,  
4-Pyridinecarboxaldehyde 1194-02-1, 4-Fluorobenzonitrile 4363-93-3,  
4-Formylquinoline  
RL: RCT (Reactant)  
(reactant; in synthesis of difluoro arom. triazine monomers for prepn.  
of polymers as hole blocking/**electron transport**  
layers for use in multilayer **light emitting**  
devices)
- IT 456-14-4P, 4-Fluorobenzamidine hydrochloride 13213-06-4P 27768-46-3P  
79128-83-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)  
(reactant; in synthesis of difluoro arom. triazine monomers for prepn.  
of polymers as hole blocking/**electron transport**  
layers for use in multilayer **light emitting**  
devices)
- IT 100-52-7, Benzaldehyde, reactions  
RL: RCT (Reactant)  
(reactant; in synthesis of difluoro arom. triazine monomers for  
synthesis of polymers as hole blocking/**electron**  
**transport** layers for use in multilayer **light**  
**emitting** devices)
- IT 188788-56-9P 188788-60-5P 188788-63-8P 188788-65-0P  
188788-68-3P 188788-70-7P 188788-75-2P 188788-77-4P 188788-79-6P  
188788-80-9P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and characterization of arom. poly(1,3,5-triazine-ethers)  
for use in multilayer **light emitting** devices)
- IT 188788-62-7P  
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); SPN  
(Synthetic preparation); PREP (Preparation); PROC (Process)  
(monomer; for prepn. of polymers as hole blocking/**electron**  
**transport** layers for use in multilayer **light**  
**emitting** devices)
- RN 188788-62-7 HCAPLUS  
CN 1,3,5-Triazine, 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)- (9CI) (CA  
INDEX NAME)





IT 188788-63-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (synthesis and characterization of arom. poly(1,3,5-triazine-ethers)  
 for use in multilayer **light emitting** devices)

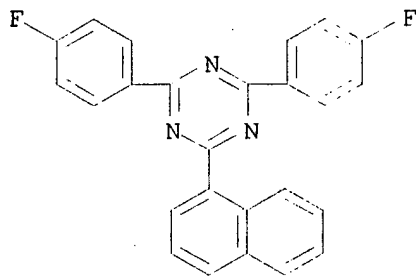
RN 188788-63-8 HCAPLUS

CN Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer  
 with 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)-1,3,5-triazine (9CI) (CA  
 INDEX NAME)

CM 1

CRN 188788-62-7

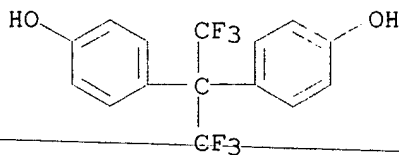
CMF C25 H15 F2 N3



CM 2

CRN 1478-61-1

CMF C15 H10 F6 O2



L11 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:760090 HCAPLUS

DN 128:62207

TI Aromatic polyethers with 1,3,5-triazine units as hole blocking/  
**electron transport** materials in LEDs

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

AU Fink, Ralf; Frenz, Carsten; Thelakkat, Mukundan; Schmidt, Hans Werner  
CS Bayreuther Inst. Makromolekuel Forschung, Univ. Bayreuth, Bayreuth,  
D-95440, Germany  
SO Macromol. Symp. (1998), 125(Organic Light-Emitting Materials and Devices),  
151-155  
CODEN: MSYMEC; ISSN: 1022-1360  
PB Huethig & Wepf Verlag  
DT Journal  
LA English  
CC 37-5 (Plastics Manufacture and Processing)  
Section cross-reference(s): 73  
AB Various difluoro-functionalized arom. 1,3,5-triazine monomers were prep'd.  
A series of poly-(1,3,5-triazine-ether)s was synthesized by  
polycondensation with 4,4'-(hexafluoroisopropylidene)diphenol. The  
polymers have excellent thermal stability and are amorphous with glass  
transition temps. of 190-250.degree.. In order to examine the potential  
to apply these polymers in org. **electroluminescent** devices, the  
redox properties were studied by cyclic voltammetry. It was found that  
the monomers have high electron affinity and reach LUMO values in the  
range of -2.7 to -3.1 eV. This opens the possibility to utilize  
1,3,5-triazine-contg. materials as electron injecting/hole blocking layer  
in LEDs. First LED results are in accordance to these high electron  
affinities.  
ST triazine monomer electron affinity polymer LED; polytriazine polyether  
**electron transport** LED  
IT Polyethers, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polycyanurate-, fluorine-contg.; prepn. and properties of triazine  
monomers and copolymers usable as electron injection material for LEDs)  
IT Polycyanurates  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-, fluorine-contg.; prepn. and properties of triazine  
monomers and copolymers usable as electron injection material for LEDs)  
IT Fluoropolymers, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(polyether-polycyanurate-; prepn. and properties of triazine monomers  
and copolymers usable as electron injection material for LEDs)  
IT Poly(arylenealkenylenes)  
RL: DEV (Device component use); USES (Uses)  
(polyphenylenevinylenes, LED layer; prepn. and properties of triazine  
monomers and copolymers usable as electron injection material for LEDs)  
IT **Electroluminescent** devices  
Electron affinity  
HOMO (molecular orbital)  
LUMO (molecular orbital)  
(prepn. and properties of triazine monomers and copolymers usable as  
electron injection material for LEDs)  
IT Monomers  
RL: PRP (Properties); RCT (Reactant)  
(prepn. and properties of triazine monomers and copolymers usable as  
electron injection material for LEDs)  
~~IT 26009-24-5, Poly(p-phenylenevinylene)~~  
~~RL: DEV (Device component use); USES (Uses)~~  
~~(LED layer; prepn. and properties of triazine monomers and copolymers~~  
~~usable as electron injection material for LEDs)~~  
IT 50926-11-9, ITO  
RL: DEV (Device component use); USES (Uses)  
(prepn. and properties of triazine monomers and copolymers usable as  
electron injection material for LEDs)  
IT 188788-79-6P 188788-80-9P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(prepn. and properties of triazine monomers and copolymers usable as electron injection material for LEDs)

IT 157141-82-7 **188788-62-7** 188788-67-2 188788-74-1  
188788-78-5

RL: PRP (Properties); RCT (Reactant)  
(prepn. and properties of triazine monomers and copolymers usable as electron injection material for LEDs)

IT 188788-56-9P 188788-60-5P **188788-63-8P** 188788-65-0P  
188788-68-3P 188788-70-7P 188788-75-2P 188788-77-4P

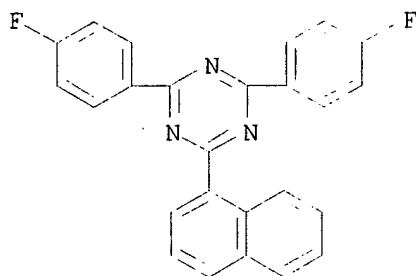
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and properties of triazine monomers and copolymers usable as electron injection material for LEDs)

IT **188788-62-7**

RL: PRP (Properties); RCT (Reactant)  
(prepn. and properties of triazine monomers and copolymers usable as electron injection material for LEDs)

RN 188788-62-7 HCAPLUS

CN 1,3,5-Triazine, 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)- (9CI) (CA INDEX NAME)



IT **188788-63-8P**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and properties of triazine monomers and copolymers usable as electron injection material for LEDs)

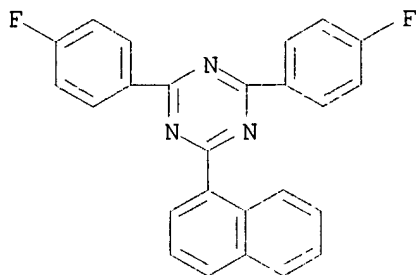
RN 188788-63-8 HCAPLUS

CN Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)-1,3,5-triazine (9CI) (CA INDEX NAME)

CM 1

CRN 188788-62-7

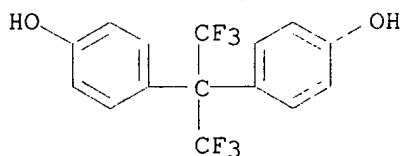
CMF C25 H15 F2 N3



CM 2

CRN 1478-61-1

CMF C15 H10 F6 O2



L11 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:224262 HCAPLUS

DN 126:264549

TI Aromatic polyethers with 1,3,5-triazine units as hole blocking/  
**electron transport** materials in LEDsAU Fink, Ralf; Frenz, Carsten; Thelakkat, mMukundan; Schmidt, Hans-Werner  
CS Makromolekulare Chemie I, Universitaet Bayreuth, Bayreuth, 95440, Germany  
SO Polym. Prepr. (Am. Chem. Soc.; Div. Polym. Chem.) (1997), 38(1), 323-324  
CODEN: ACPPAY; ISSN: 0032-3934

PB American Chemical Society, Division of Polymer Chemistry

DT Journal

LA English

CC 36-5 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 35, 76

AB Asym. substituted bifunctional triazine monomers were prep'd. by reaction of aniline derivs. and 4-fluorobenzamidine. Polyethers contg. the bifunctional triazine units were prep'd. by condensation with hexafluoro-bisphenol-A; the polymers show good thermal stability up to 430.degree.. The polymers exhibit low redn. potentials due to high electron affinity, compared to that of other hole blocking/  
**electron transporting** materials such as oxadiazoles. The lower redn. potential and the higher oxidn. potential results in a decreased barrier for electron injection and increased barrier for holes. A two-layer LED device fabricated with an s-triazine polyether as **electron transport** layer and PPV as hole-transport layer and EML, demonstrated the hole blocking/electron injection activity of the s-triazine polyether.

ST polyether triazine electron injection LED; **light emitting diode** polyether triazine PPV

IT Polyethers, properties

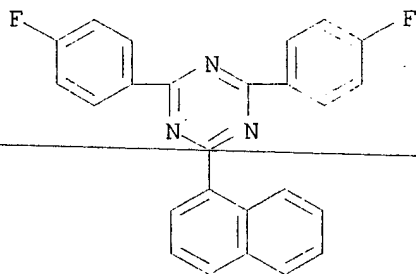
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic

- preparation); PREP (Preparation); USES (Uses)  
(arom., fluorine-contg., polytriazine; prepn. and redox potential and LEDs of arom. poly(triazine-ethers) as hole blocking/**electron transport** layer)
- IT Fluoropolymers, properties  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(polyether-, arom., polytriazine; prepn. and redox potential and LEDs of arom. poly(triazine-ethers) as hole blocking/**electron transport** layer)
- IT **Electroluminescent** devices  
Electron mobility  
Hole mobility  
Oxidation potential  
Reduction potential  
Thermal decomposition enthalpy  
(prepn. and redox potential and LEDs of arom. poly(triazine-ethers) as hole blocking/**electron transport** layer)
- IT Poly(arylenealkenylenes)  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(prepn. and redox potential and LEDs of arom. poly(triazine-ethers) as hole blocking/**electron transport** layer)
- IT 50926-11-9P, ITO 96638-49-2P, Poly(phenylene vinylene) 188788-56-9P  
188788-60-5P **188788-63-8P** 188788-65-0P 188788-68-3P  
188788-70-7P 188788-75-2P 188788-77-4P 188788-79-6P 188788-80-9P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(prepn. and redox potential and LEDs of arom. poly(triazine-ethers) as hole blocking/**electron transport** layer)
- IT **188788-63-8P**  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(prepn. and redox potential and LEDs of arom. poly(triazine-ethers) as hole blocking/**electron transport** layer)
- RN 188788-63-8 HCAPLUS
- CN Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 2,4-bis(4-fluorophenyl)-6-(1-naphthalenyl)-1,3,5-triazine (9CI) (CA INDEX NAME)

CM 1

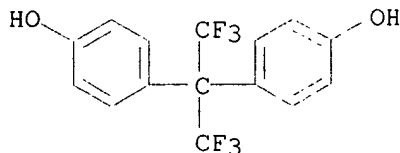
CRN 188788-62-7

CMF C25 H15 F2 N3



CM 2

CRN 1478-61-1  
CMF C15 H10 F6 O2



L11 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:659262 HCAPLUS

DN 125:288838

TI Sensitized photopolymerizable compositions for manufacture of lithographic plates

IN West, Paul Richard; Gurney, Jeffery Allen

PA Eastman Kodak Company, USA

SO Eur. Pat. Appl., 29 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G03F007-031

ICS C08F002-50

CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 730201	A1	19960904	EP 1996-200485	19960226
	EP 730201	B1	20010509		
	R: BE, DE, FR, GB, IT, NL				
	US 5629354	A	19970513	US 1995-395352	19950228
	JP 08254821	A2	19961001	JP 1996-41630	19960228
	US 5942372	A	19990824	US 1996-752342	19961119
	US 5914215	A	19990622	US 1997-911288	19970814
PRAI	US 1995-395352	A	19950228		
	US 1996-752342	A3	19961119		

OS MARPAT 125:288838

AB Improved photopolymn. initiator systems are comprised of a spectral sensitizer that sensitizes in the UV or visible regions of the spectrum and an N-aryl, O-aryl, or S-aryl polycarboxylic acid coinitiator. The improved initiator systems are incorporated in photopolymerizable compns. contg. one or more addn.-polymerizable ethylenically unsatd. compds. to form compns. suitable for the prepn. of radiation-sensitive layers in manuf. of lithog. plates adapted to be imagewise exposed with UV- or visible-light-emitting lasers such as argon-ion lasers and frequency doubled Nd:YAG lasers. Such plates are able to effectively meet the dual requirements of very high photospeed and very good shelf life required in computer-to-plate systems.

ST sensitized photopolymerizable compn manuf lithog plate

IT Lithographic plates

(sensitized photopolymerizable compns. for manuf. of)

IT 125051-32-3

RL: TEM (Technical or engineered material use); USES (Uses)

(CGI 784; sensitized photopolymerizable compns. for lithog. plate manuf. contg.)

IT 32435-46-4, Kayamer PM-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (Kayamer PM 2; sensitized photopolymerizable compns. for lithog. plate  
 manuf. contg.)

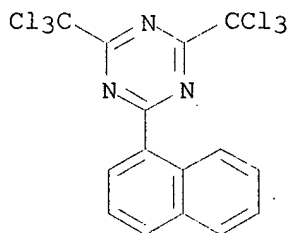
IT 28961-43-5, Sartomer 9008  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (Sartomer 9008; sensitized photopolymerizable compns. for lithog. plate  
 manuf. contg.)

IT 147-14-8, Copper phthalocyanine 1137-73-1, Anilinediacetic acid  
 3524-68-3, Pentaerythritol triacrylate 4395-58-8 6359-05-3, Ethyl  
 eosin 6542-67-2, 2,4,6-Tris(trichloromethyl)-s-triazine 7189-82-4  
 24481-46-7 30042-69-4 34100-36-2 58109-40-3,  
 Diphenyliodonium hexafluorophosphate 63123-42-2 63226-13-1,  
 3,3'-Carbonylbis(7-diethylaminocoumarin) 77831-38-0 116450-61-4  
 116450-65-8 116450-67-0 117522-01-7, Tetramethylammonium  
 butyltriphenylborate 125604-88-8, 4-(Octyloxyphenyl)phenyliodonium  
 tosylate 182807-57-4  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (sensitized photopolymerizable compns. for lithog. plate manuf. contg.)

IT 24481-46-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (sensitized photopolymerizable compns. for lithog. plate manuf. contg.)

RN 24481-46-7 HCAPLUS

CN 1,3,5-Triazine, 2-(1-naphthalenyl)-4,6-bis(trichloromethyl)- (9CI) (CA  
 INDEX NAME)



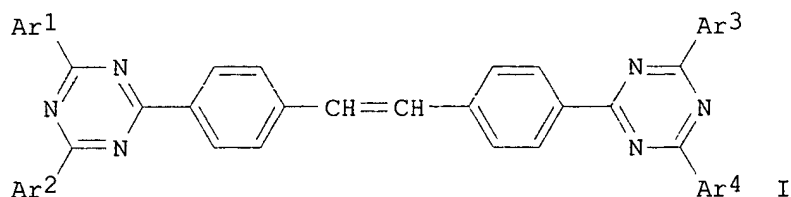
L11 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1996:184374 HCAPLUS  
 DN 124:246169  
 TI Organic field-effect **electroluminescent** device  
 IN Sato, Yoshiharu  
 PA Mitsubishi Kagaku Kk, Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C09K011-06  
 ICS H05B033-14

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CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)  
 Section cross-reference(s): 28

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	-----	-----	-----	-----
PI	JP 08012967	A2	19960116	JP 1994-147730	19940629
OS	MARPAT 124:246169				
GI					



AB The device has an org. **light-emitting** layer contg. a 4,4'-bis(triazinylstilbene) deriv. described by the general formula I (Ar1-4 = aryl, biphenyl, arom. heterocyclic group; Ar1-4 may be substituted) and a hole-transporting layer between an anode and a cathode on a substrate. The device showed high and stable luminance.

ST triazinyl stilbene **electroluminescent** device

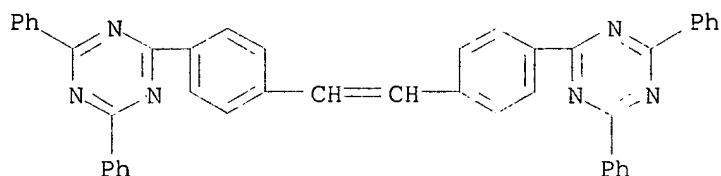
IT **Electroluminescent** devices  
(field-effect **electroluminescent** device having bis(triazinylstilbene) deriv. **light-emitting** layer with high and stable luminance)

IT **6888-33-1**  
RL: DEV (Device component use); USES (Uses)  
(field-effect **electroluminescent** device having bis(triazinylstilbene) deriv. **light-emitting** layer with high and stable luminance)

IT **6888-33-1**  
RL: DEV (Device component use); USES (Uses)  
(field-effect **electroluminescent** device having bis(triazinylstilbene) deriv. **light-emitting** layer with high and stable luminance)

RN 6888-33-1 HCAPLUS

CN 1,3,5-Triazine, 2,2'-(1,2-ethenediyl)-4,4'-biphenylene)bis[4,6-diphenyl-  
(9CI) (CA INDEX NAME)



L11 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:735391 HCAPLUS

DN 123:156343

TI Amorphous organic thin film device with excellent heat-resistance, amorphous organic polymer compositions and amorphous inorganic compositions

IN Naito, Katsuyuki

PA Tokyo Shibaura Electric Co, Japan

SO Jpn. Kokai Tokkyo Koho, 26 pp.  
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L051-00  
ICS C08K005-00; H01L049-00

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other

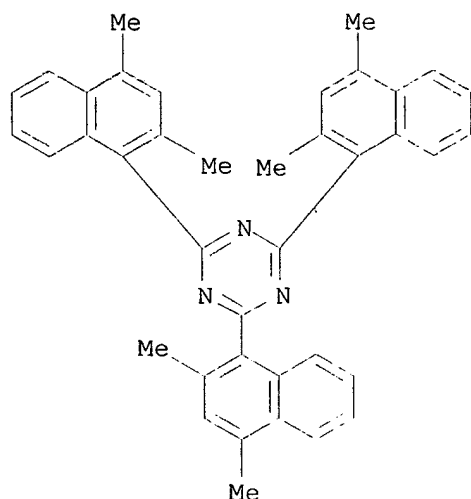


## Reprographic Processes)

Section cross-reference(s): 41, 73, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07094807	A2	19950407	JP 1994-48092	19940318
	US 5707779	A	19980113	US 1996-701991	19960823
PRAI	JP 1993-184652		19930727		
	JP 1994-48092		19940318		
	US 1994-281034		19940727		
AB	The title device contains dyes, R(XY)n or R'Yn [R = arom. frame; R' = hetero arom. frame; X = specified connecting group; Y = dye frame; n .gtoreq.3].				
ST	amorphous org thin film device; electrophotog photoreceptor amorphous thin film				
IT	Electric rectification				
	<b>Electroluminescent</b> devices				
	Electrophotographic photoconductors and photoreceptors				
	Optical filters				
	Photoelectric devices, solar				
	Spectral hole burning				
	(amorphous org. thin film device with excellent heat-resistance, amorphous org. polymer compns. and amorphous inorg. compns.)				
IT	Memory devices				
	(optical disks, amorphous org. thin film device with excellent heat-resistance, amorphous org. polymer compns. and amorphous inorg. compns.)				
IT	Optical instruments				
	(switches, amorphous org. thin film device with excellent heat-resistance, amorphous org. polymer compns. and amorphous inorg. compns.)				
IT	108-77-0	135-19-3,	2-Naphthalenol, reactions	575-41-7,	
	1,3-Dimethylnaphthalene	4422-95-1,	1,3,5-Benzenetricarbonyl trichloride		
	17223-85-7,	N-Aminocarbazole	53338-48-0	159222-58-9	
	RL: RCT (Reactant)				
	(org. dyes from)				
IT	166306-88-3	166306-89-4	166306-90-7	166306-91-8	166306-92-9
	166306-93-0	166306-94-1	167115-58-4	167172-68-1	167172-69-2
	167172-70-5				
	RL: DEV (Device component use); USES (Uses)				
	(org. dyes of thin film devices)				
IT	4532-28-9P	159222-53-4P	159222-54-5P	166306-86-1P	
	<b>166306-87-2P</b>				
	RL: DEV (Device component use); SPN (Synthetic preparation); PREP				
	(Preparation); USES (Uses)				
	(org. dyes of thin film devices)				
IT	<b>166306-87-2P</b>				
	RL: DEV (Device component use); SPN (Synthetic preparation); PREP				
	(Preparation); USES (Uses)				
	(org. dyes of thin film devices)				
RN	166306-87-2	HCAPLUS			
CN	1,3,5-Triazine, 2,4,6-tris(2,4-dimethyl-1-naphthalenyl)- (9CI) (CA INDEX NAME)				



L11 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1994:521739 HCAPLUS  
 DN 121:121739  
 TI Photosensitive composition containing acid-releasing agent and manufacture of color filter  
 IN Hishiro, Yoshiki; Takeyama, Naomiki; Yamamoto, Shigeki  
 PA Sumitomo Chemical Co, Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS G02B005-20; G03F007-004; G03F007-022; G03F007-029  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06051513	A2	19940225	JP 1992-201039	19920728
AB	<p>Claimed are (a) photosensitive compn. contg. a water-sol. polymer and an acid-releasing agent and (b) manuf. of a color filter by a process including following successive steps; (1) coating a compn. contg. acid-curable resin and a crosslinking agent on a substrate, (2) depositing a photosensitive compn. described, (3) photolithog. patterning, and (4) coloring the resulting neg.-working pattern, or (1') coating a compn. contg. acid-curable resin, a crosslinking agent, and a colorant, (2') coating the photosensitive compn., and (3') photolithog. patterning. The photosensitive compn. e.g., a mixt. of poly(vinyl alc.) and 2,6-di(trichloromethyl)-4-(p-methoxyphenyl)triazine, provides a color filter with solvent-resistant accurate pattern.</p>				
ST	<p>color filter photosensitive resin compn; acid releasing agent color filter; neg working photoresist color filter; polyvinyl alc triazine color filter; water sol polymer color filter</p>				
IT	<p>Optical filters          (color filter, manuf. of, neg.-working photoresist assocd. with photosensitive compn. contg. water-sol. polymer and acid-releasing agent for)</p>				

- IT Phenolic resins, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(novolak, cresol-based, neg.-working photoresist from, assocd. with photosensitive compn. contg. water-sol. polymer and acid-releasing agent, for manuf. of color filter)
- IT Resists  
(photo-, neg.-working, assocd. with photosensitive compn. contg. water-sol. resin and acid-releasing agent, for manuf. of color filter)
- IT 3584-23-4 **69432-40-2**  
RL: USES (Uses)  
(acid-releasing agent, contg. water-sol. polymer, for manuf. of color filter from neg.-working photoresist)
- IT 147-14-8, C.I. Pigment Blue 15 5601-29-6, Oleosol Yellow 2G  
12237-24-0, Oleosol Blue EL 61725-85-7, Oleosol Red BL  
RL: USES (Uses)  
(colorant, neg.-working photoresist contg., for manuf. of color filter, photosensitive compn. for)
- IT 9003-08-1, Formaldehyde-melamine copolymer 27029-76-1,  
Formaldehyde-m-cresol-p-cresol copolymer 59269-51-1, Poly(vinylphenol)  
110123-09-6, Maruka Lyncur CHM 156409-67-5, ARG 30  
RL: USES (Uses)  
(neg.-working photoresist from, assocd. with photosensitive compn. contg. water-sol. polymer and acid-releasing agent, for manuf. of color filter)
- IT **69432-40-2**  
RL: USES (Uses)  
(acid-releasing agent, contg. water-sol. polymer, for manuf. of color filter from neg.-working photoresist)
- RN 69432-40-2 HCAPLUS
- CN 1,3,5-Triazine, 2-(4-methoxy-1-naphthalenyl)-4,6-bis(trichloromethyl)-  
(9CI) (CA INDEX NAME)

